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Taxonomic Changes and New Records of Japanese Bark and Ambrosia Beetles (Coleoptera, Curculionidae, Scolytinae)

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Abstract In this study of some Japanese species of scolytine bark and ambrosia beetles, the following new synonymy is proposed: *Arixyleborus malayensis* (SCHEDL) (=*Xyleborus yakushimanus* MURAYAMA, syn. n.), *Coccotrypes longior* (EGGERS) (= *Dryocoetes naidaijinensis* MURAYAMA, syn. n.), *Microperus perparvus* (SAMPSON) (= *Xyleborus tsukubanus* MURAYAMA, syn. n.). The synonymy of *Ernocryphalus* MURAYAMA, with *Scolytogenes* EICHHOFF, and not *Cryphalus* ERICHSON as given by WOOD and BRIGHT (1992), is confirmed. The following new combinations are given: *Xyleborinus octiesdentatus* (MURAYAMA), comb. n. from *Xyleborus*. The following species are newly recorded from Japan: *Ambrosiodmus asperatus* (BLANDFORD), *Xyleborus haberkorni* EGGERS, *Xyleborus mucronatus* EGGERS, *Xylosandrus discolor* (BLANDFORD). The following species are newly recorded from the southern part of the Ryukyu archipelago: *Euwallacea fornicatus* (EICHHOFF), *Hypothenemus birmanus* (EICHHOFF), *Hypothenemus eruditus* WESTWOOD.

Key words: Curculionidae, Japan, new combination, new record, new synonymy, Ryukyu Islands, Scolytinae.

Introduction

The Japanese fauna of bark and ambrosia beetles (Curculionidae, Scolytinae) is one of the best known in East Asia, thanks largely to the studies of BLANDFORD (1893–1894), NIISIMA (1905–1943), MURAYAMA (1929–1971) and NOBUCHI (1959–1985).

A bibliography of many papers by these and other workers is included in WOOD and BRIGHT (1987, 1992). NOBUCHI (1985) lists the species recorded from Japan. However, further collecting can still reveal previously unrecorded species, particularly in the subtropical Ryukyu archipelago. This paper records four species for the first time from Japan; three species are recorded for the first time from the southern Ryukyu islands. In addition, we propose three new synonyms, and correct the generic placement of one species. Further references to all the species mentioned and details of previously published synonymy can be found in the catalog by WOOD and BRIGHT (1992) and its supplements (BRIGHT & SKIDMORE, 1997, 2002). For the new records, we cite only the current generic affiliation of the species as given by WOOD and BRIGHT (1992), and not the original genus in which the species was described. The latter information can be obtained from the catalog. The following abbreviations are used for collections: NHML, Natural History Museum, London; RAB, R. A. BEAVER's private collection, Chiangmai; USNM, United States National Museum, Washington.

Taxonomic Changes

Arixyleborus malayensis (SCHEDL)

Xyleboricus malayensis SCHEDL, 1954, 150.
Xyleborus yakushimanus MURAYAMA, 1955, 83. Syn. n.

The male of the species was described from Java by SCHEDL (1954) in the genus *Xyleboricus* EGGERS. The female was described by SCHEDL (1958) and the species transferred to *Arixyleborus* HOPKINS (=*Xyleboricus* EGGERS). We have compared female specimens from Malaysia and Thailand determined as *A. malayensis* by SCHEDL and F. G. BROWNE in NHML and RAB with two females from Japan (Kyushu) determined as *Xyleborus yakushimanus* by M. KNIZĚK by comparison with MURAYAMA's holotype (USNM). The specimens are clearly conspecific. *X. yakushimanus* therefore becomes a synonym of *A. malayensis*. This is the only species of *Arixyleborus* which occurs in the Far East (China and Japan). Its distribution, however, extends from Sri Lanka and Northeast India through Southeast Asia to Indonesia. The species, like most ambrosia beetles, is polyphagous, and has been recorded from a taxonomically wide range of hosts (BROWNE, 1961; YIN *et al*., 1984; MAITI & SAHA, 2004). No hosts have yet been recorded in Japan, but the species is likely to attack a wide range of hardwood trees.

Coccotrypes longior (EGGERS)

Poecilips longior EGGERS, 1927, 83.
Dryocoetes naidaijinensis MURAYAMA, 1957, 605. Syn. n.

Poecilips longior was described from the Philippines by EGGERS (1927). It was automatically transferred to the genus *Coccotrypes* EICHHOFF following the synonymy of the two genera (WOOD, 1973). Further synonyms are listed by WOOD and BRIGHT (1992). The holotype of *Dryocoetes naidaijinensis* and about 50 other specimens from MURAYAMA's collection (USNM) have been compared with specimens from Brunei Darussalam, East and West Malaysia, Indonesia (Sulawesi), Papua New Guinea and Thailand in R. A. BEAVER's collection, which had earlier been compared with a syntype of *C. longior* in NHML. The vestiture of the elytral declivity varies from moderately long hairs to shorter, more strongly flattened setae, but other characters are much less variable, and only a single species appears to be represented. The species is distributed from India through Southeast Asia and Indonesia. It has been imported to Japan in timber from New Britain and the Solomon Islands (OHNO *et al.*, 1988). It breeds below the bark of a variety of trees (BROWNE, 1961), and also in the petioles of large fallen leaves (BEAVER & BROWNE, 1979).

Microperus perparvus (SAMPSON)

Xyleborus perparvus SAMPSON, 1922, 151.
Microperus perparvus: MAITI & SAHA, 1986, 97.
Coptodryas perparva: WOOD & BRIGHT, 1992, 826.
Xyleborus tsukubanus MURAYAMA, 1954, 195. Syn. n.

The species was described from West Bengal (India) by SAMPSON (1922) in the genus *Xyleborus* EICHHOFF. It was transferred to *Microperus* WOOD by MAITI and SAHA (1986). However, WOOD and BRIGHT (1992) considered this genus to be a synonym of *Coptodryas* HOPKINS. *Microperus* was reinstated as a good genus by HULCR *et al.* (2007) based largely on the characters of the antenna, but *M. perparvus* was not returned to the genus in that paper. The antennal club of *M. perparvus* is obliquely truncated in profile not rounded. On the anterior face the first segment is strongly sclerotized and occupies about one half of the club height, its apical margin forming a pronounced circular costa, the second segment is soft and unsclerotized. On the posterior face only the first segment is visible. These characters and others indicate that the species was correctly placed in *Microperus* by MAITI and SAHA (1986). We have directly compared specimens of *M. perparvus* in RAB from Thailand and West Malaysia, which had earlier been compared with syntypes in NHML, with two specimens of *Xyleborus tsukubanus* MURAYAMA from Japan which had been identified by reference to the holotype (USNM) by M. KNIŽEK. Only a single species is represented. We therefore place *X. tsukubanus* in synonymy with *M. perparvus*.

The native distribution of the species extends from India throughout Southeast Asia and Indonesia. It may have been introduced to the Solomon Is. This is a polyphagous ambrosia beetle breeding mostly in small stems up to about 15 cm diameter (BROWNE, 1961). It is not known to have any economic importance.

Scolytogenes EICHHOFF

Scolytogenes EICHHOFF, 1878, 497.
Ernocryphalus MURAYAMA, 1958, 934. Synonymy: SCHEDL, 1962, 203.

The genus *Ernocryphalus* was erected by MURAYAMA (1958) for the single species *E. birosimensis* MURAYAMA, collected from *Pittosporum tobira* (Pittosporaceae) on Birô Island in Kagoshima Prefecture. SCHEDL (1962) having examined specimens, synonymised the genus with *Cryphalomorphus* SCHAUFUSS, a genus now considered to be a synonym of *Scolytogenes* EICHHOFF (WOOD, 1986). However, SCHEDL (1963) without reference to his earlier paper, synonymised the genus with *Cryphalus* ERICHSON. In his reclassification of the subfamilies and tribes of Scolytinae, WOOD (1978) erroneously listed *Ernocryphalus* as a synonym of both *Cryphalus* and *Scolytogenes*, but in his reclassification of the genera of Scolytinae (WOOD, 1986), the genus is given as a synonym of *Cryphalus*. This position is maintained in the catalog of Scolytinae (WOOD & BRIGHT, 1992), and its second supplement (BRIGHT & SKIDMORE, 2002). However, NOBUCHI (1971) already published a drawing of the antenna of the type species (as *Cryphalomorphus birosimensis* (MURAYAMA)), which clearly shows that the species can not be placed in *Cryphalus*, and belongs in the genus *Scolytogenes*. Examination of specimens, which were collected by H. GOTO on Iriomote Island in the Ryukyu archipelago from *Pittosporum denudatum* (GOTO, 1996) and by N. TOMISAWA on Iriomote and Ishigaki Islands in the Ryukyu archipelago from *Pittosporum tobira,* confirms the placement in *Scolytogenes*. The antennal club has an oblique septum on one side, and the basal suture is strongly procurved almost forming a circle, characters not found in *Cryphalus* but distinctive of *Scolytogenes*. The eye is entire, and not emarginate as in *Cryphalus*. The metatibia has a well-developed glabrous groove on its posterior side for reception of the tarsus. This groove is reduced or absent in *Cryphalus.* As a consequence of the synonymy of *Ernocryphalus* with *Scolytogenes*, its type (and only) species (*E. birosimensis*) is automatically included in the latter genus, in which it was listed by NOBUCHI (1985).

Xyleborinus octiesdentatus (MURAYAMA), comb. n.

Xyleborus octiesdentatus MURAYAMA, 1931, 46.

MURAYAMA (1931) described both sexes of *Xyleborus octiesdentatus* from specimens collected from *Eurya japonica* THUNBERG (Theaceae), on Cheju Island in South Korea. It was later recorded from Japan (MURAYAMA, 1934) and from China (Sichuan) (YIN *et al.*, 1984). It is listed by NOBUCHI (1985) in the genus *Xyleborus*, and in the same genus by WOOD and BRIGHT (1992). Examination of specimens collected by H. GOTO on Ishigaki Island in the Ryukyu archipelago indicates that the species should be transferred to the genus *Xyleborinus* REITTER. The genus is characterised by the presence of a cone-shaped scutellum, visible between the emarginated bases of the elytra, and elytral mycangia (HULCR *et al.*, 2007). The species was redescribed and figured by NUNBERG (1982), and this reference should be added to those given by WOOD and BRIGHT (1992).

New Records

Ambrosiodmus asperatus (BLANDFORD, 1895, 321)

Japan: 1♀, Amami Oshima Is., Ryukyu Isls., 25–VIII–2006, M. SUNOHARA leg.

This species is recorded for the first time from Japan. It is recorded from Sri Lanka, India and China to Malaysia and Indonesia. BROWNE (1961) notes that it usually breeds in small branches, and, like most amrbosia beetles, is polyphagous attacking a wide variety of hosts.

Euwallacea fornicata (EICHHOFF, 1868, 151)

Japan: 1♀, Miyako Is., Ryukyu Isls., 28–IX–2005, H. KAJIMURA leg.

The species was recorded from the Bonin Islands (Chichi Jima Is.) by WOOD (1960), and from the Amami islands in the northern part of the Ryukyu archipelago by YAMAGUCHI *et al.* (2006), but appears not to have been recorded before from the southern Ryukyu Islands. It is not known from the main islands of Japan. It has a wide native distribution from the Indian subcontinent throughout Southeast Asia. It has been introduced to Australia and the Pacific islands, including Hawaii, Madagascar and neighbouring islands, the mainland of North America (RABAGLIA *et al.*, 2006), and to Panama. It is strongly polyphagous, attacking almost all the major tree families of the Asian tropics (BROWNE, 1961). It is well-known as a pest in tea plantations in Sri Lanka and southern India, and can sometimes become a pest of fruit and other plantation trees (HILL, 1983; YAMAGUCHI *et al.*, 2006). Further details of the biology of the species are given by BROWNE (1961) and KALSHOVEN (1958).

Hypothenemus birmanus (EICHHOFF, 1878, 486)

Japan: 1 ex., Amami Oshima Is., Ryukyu Isls., 20–VI–2006, M. SUNOHARA leg.; 1 ex., Ishigaki Is., Ryukyu Isls., 25–VI–2007, S. SATO leg.; 1 ex., Okinawa Is., Ryukyu Isls., 21–VII–2006, H. CHIKUGI leg.

This species has been recorded both from the main islands of Japan, and from Chichi-Jima Is. in the Bonin Islands (NOBUCHI & ONO, 1973), but not previously from the Ryukyu Islands. It now has an almost circum-tropical distribution as a result of transport by man, but is probably of Southeast Asian origin (WOOD, 1977). It is a twig and shoot borer which attacks a very wide range of hosts. Attacks on young seedlings and transplants have been recorded (*e.g.*, BROWNE, 1968; BIGGER, 1988), although the species is not usually of economic importance.

Hypothenemus eruditus WESTWOOD, 1836, 34

Japan: 1 ex., Iriomote Is., Ryukyu Isls., 18–X–2005, N. TOMISAWA leg.; 1 ex., Ishigaki Is., Ryukyu Isls., 16–X–2005, N. TOMISAWA leg.

This minute species is one of the most commonly collected scolytines in all tropical and subtropical regions, and is sometimes intercepted in temperate zone countries. Due partly to its pantropical distribution, it has been described under about 70 different specific names (WOOD & BRIGHT, 1992). It has been recorded from the main islands of Japan and the Bonin Is. (NOBUCHI, 1985), but not previously from the Ryukyu archipelago. It is extremely polyphagous. It breeds below bark, in the pith of twigs, in seeds and fruits, in the petioles of fallen leaves, often in drier conditions than those tolerated by the majority of scolytines. It has occasionally been recorded as a pest of seedlings and transplants, but has no significant economic importance.

Xyleborus haberkorni EGGERS, 1920, 43

Japan: 1 ♀, Ishigaki Is., Ryukyu Isls., 16–VIII–2007, S. SATO leg.

This species is newly recorded here from Japan. It was described from East Africa, but is of the Oriental origin, and was presumably transported to Africa by man. Its native distribution extends from India and Sri Lanka to Taiwan and Java. It is a polyphagous ambrosia beetle, which, like *Xyleborus mucronatus* mentioned below, is often closely associated with other xyleborines (KALSHOVEN, 1960; BEAVER & BROWNE, 1979), and may be making use of the ambrosial fungi of these species (J. HULCR, pers. comm., 2007).

Xyleborus mucronatus EGGERS, 1923, 191.

Japan: 1 ♀, Wakayama, Honshu, 15–VI–2004, T. HOGEN leg.

This species is newly recorded here from Japan. It was previously recorded from East and West Malaysia, Indonesia (Java), the Philippines and Thailand. Like most ambrosia beetles, it is polyphagous, and appears not to show host preference (BROWNE, 1961; KALSHOVEN, 1959). However, it does appear to show size preference, and is found mainly in cut poles and branches from 1.5–15 cm diameter (BROWNE, 1961). It is likely that this species, and related species, have a commensalistic relationship with other xyleborine ambrosia beetles (KALSHOVEN, 1960; J. HULCR, pers. comm., 2007). They start their galleries near those of other xyleborines and bore into wood already occupied by the ambrosia fungus of the pioneer species. This provides an immediate source of food for the later arriving species.

Xylosandrus discolor (BLANDFORD, 1898, 429)

Japan: 1 ♀, Okinawa Is., Ryukyu Isls., 21–X–2005, H. KAJIMURA leg.

This species is newly recorded here from Japan. It has a wide distribution from India and Sri Lanka, through Southeast Asia to Taiwan and the Philippines. The species is a polyphagous ambrosia beetle boring in twigs and shoots (BEESON, 1961; BROWNE, 1961; KALSHOVEN, 1959). Primary attacks on apparently healthy hosts can occur (BROWNE, 1968), and it is an occasional pest of coffee (LEPELLEY, 1968).

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要　約

R. A. BEAVER・梶村　恒・後藤秀章: キクイムシ類についての学名の変更および日本からの新記録. —— 日本産のキクイムシ亜科について，以下の3つの新参異名，1つの新結合が見いだされた.

新参異名

Arixyleborus malayensis (SCHEDL) (=*Xyleborus yakushimanus* MURAYAMA)
Coccotrypes longior (EGGERS) (=*Dryocoetes naidaijinensis* MURAYAMA)
Microperus perparvus (SAMPSON) (=*Xyleborus tsukubanus* MURAYAMA)

新結合

Xyleborinus octiesdentatus (MURAYAMA)

また *Ernocryphalus* MURAYAMA は，WOOD & BRIGHT (1992) では *Cryphalus* ERICHSON のシノニムとされていたが，*Scolytogenes* EICHHOFF のシノニムであることを確認した．さらに *Ambrosiodmus asperatus* (BLANDFORD), *Xyleborus haberkorni* EGGERS, *Xyleborus mucronatus* EGGERS, および *Xylosandrus discolor* (BLANDFORD) の4種を日本からの，*Euwallacea fornicata* (EICHHOFF), *Hypothenemus birmanus* (EICHHOFF), および *Hypothenemus eruditus* WESTWOOD の3種を琉球列島南部からの初記録として報告した.

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Additional Record of *Eucurtiopsis ohtanii* (Coleoptera, Histeridae, Chlamydopsinae) from Kyushu, Japan

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The genus *Boreochlamydus* was defined by SAWADA (1994) with the type species *B. ohtanii* from Ôita and Mie, Japan. Later, ÔHARA (1994) transferred this species to the genus *Eucurtiopsis.* The species of this genus are recorded from Japan and Taiwan. Up to the present, two species of the genus have been known from Japan. Of these, *E. ohtanii* is known as myrmecophile associated with *Pheidole fervida* SMITH, 1874 (ÔHARA, 1994) and have hitherto been known from Honshu and Kyushu, Japan (SAWADA, 1994; ÔHARA, 1994; NOMURA *et al.*, 2006, etc.). Recently, I had an opportunity to examine one individual of the histerid beetle collected from Kyushu.

In this brief paper, I will report the second record of this species from Kyushu.

I am deeply indebted to Mr. Toshiharu MITA and Shinsuke SATO (Kyushu Univ.) for supplying me with the invaluable specimen and to Dr. Munetoshi MARUYAMA (Kyushu Univ. Mus.) for his critical reading of this draft. I also thank Dr. Masahiro ÔHARA (Hokkaido Univ. Mus.) for his kind advice.

Eucurtiopsis ohtanii (K. SAWADA, 1994)

Specimen examined. 1 ex., Hiko-san (640 m alt.), Soeda-machi, Fukuoka Pref., Japan, 26–V to 5–VI–2008, T. MITA & S. SATO leg., by Malaise trap (deposited in the author's collection).

Remarks. New record from Fukuoka Pref. *Pheidole fervida*, a symbiotic host ant, is widely distributed in Kyushu. It suggests that this species will be discovered from the other areas of Kyushu.

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Studies on the Endophallic Structures of the Japanese Phrissomini (Coleoptera, Cerambycidae)

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Abstract Endophallic structures of all the Japanese species of the cerambycid tribe Phrissomini are described and illustrated. Although the endophallus and crescent sclerites are morphologically similar to each other, the surface of ventral tubercles of the preapical bulb and the hair-like microtrichia on the ventral surface of medial tube can be used as diagnostic characters for species and subspecies. It is inferred that the endophallus of the Phrissomini is so fragile to function as the physical mechanism for the precopulatory isolation.

Introduction

The tribe Phrissomini Thomson, 1860 is characterized by the vestigial hind wings, the shortened metasternum and the closed cicatrix on scape. Six endemic species belonging to three genera of the tribe are distributed in Japan (Hasegawa, 2007), *viz.*, *Hayashiechthistatus inexpectus*, *Parechthistatus gibber*, *Mesechthistatus binodosus*, *M. furciferus*, *M. taniguchii* and *M. fujisanus*.

Hayashiechthistatus inexpectus is endemic to Yakushima Island. *Parechthistatus gibber* is distributed in Honshu west of Kantô District, Shikoku, Kyushu, Oki Island and the Tsushima Islands (Takakuwa *et al.*, 2004; Nakamine & Takeda, 2008 a), and currently includes 10 subspecies (Miyake, 1980). The genus *Mesechthistatus* includes four species parapatrically distributed in Honshu and Sado Island, *viz.*, *M. binodosus* from eastern Honshu north of Kantô District and Sado Island; *M. furciferus* from eastern Honshu facing the Sea of Japan and running westward to northern Kinki District beyond the Itoigawa-Shizuoka tectonic line; *M. taniguchii* from such central mountains of Honshu as Mt. Ontake, Mts. Kiso, Mts. Akaishi and Mts. Yatsu; *M.*

fujisanus from Mts. Yatsu and Kantô District (TAKAKUWA, 1988; TAKAKUWA *et al.*, 2004; NAKAMINE & TAKEDA, 2008 b).

The tribe Phrissomini has been investigated taxonomically based on external morphology (*e.g.*, MIYAKE, 1980; TAKAKUWA, 1988) and molecular phylogeny (NAKAMINE & TAKEDA, 2008 a, b). The morphology of male genital organ has served for analyzing insect taxonomy, phylogeny and evolution, especially in the endophallic structure (*e.g.*, KUBOTA & SOTA, 1998; DANILEVSKY *et al.*, 2004; DANILEVSKY & KASATKIN, 2006; IMURA, 2007). However, there are a few studies using the endophallus as a diagnostic character in the Cerambycidae (DANILEVSKY *et al.*, 2004; DANILEVSKY & KASATKIN, 2006). It is unique that TOKI & KUBOTA (2007) described the morphology of endophallus in *Mesechthistatus binodosus* and *M. taniguchii* of the Phrissomini. They suggested that the apical phallomere is clearly different in structure between *M. binodosus* and *M. taniguchii*, though that character is very fragile, and sometimes impossible to make comparisons in the case of specimen fixed in ethanol and dried one.

We have recently examined endophallic structure of all the Japanese species including most of their subspecies of the tribe Phrissomini, and will describe and illustrate them with a brief discussion in the present paper.

Materials and Methods

The specimens examined in this study were immediately fixed in 95–99.5% ethanol for molecular phylogenetic analysis or in dried condition killed by ethyl acetate gas. The mesothorax, metathorax and abdomen were heated with water in a vessel floating on boiling water for 10–20 minutes for removing ethanol and softening. Abdominal tergite was slashed with tweezers and exposed the inside. The specimens were placed in enzyme solution consisting of 30 ml saturated aqueous sodium borate ($Na_2B_4O_7 \cdot 10H_2O$), 70 ml distilled water and 1 g trypsin, and incubated at 40℃. After incubated overnight, the muscles were digested and the genital organ was extracted from the abdomen if it could be pulled safely. Besides, the extracted genital organ was placed again in the trypsin solution to digest muscles, and incubation was continued for one to two days at 40℃. Remaining muscles and soft tissues were removed under a binocular microscope, and the median lobe with endophallus was separated from the tegmen. Next, the endophallus was everted carefully with a pair of fine tweezers. Finally, the endophallus was fully everted by filling vaseline.

Terminology of morphological characteristics follows DANILEVSKY *et al.* (2004), DANILEVSKY & KASATKIN (2006), OHBAYASHI (2007), TOKI & KUBOTA (2007), and YAMASAKO & OHBAYASHI (2007) (Fig. 1). The abbreviations used in description are as follows: bt – basal tube, mt – medial tube, ct – central trunk, pb – preapical bulb, vt – ventral tubercles, cs – crescent sclerites.

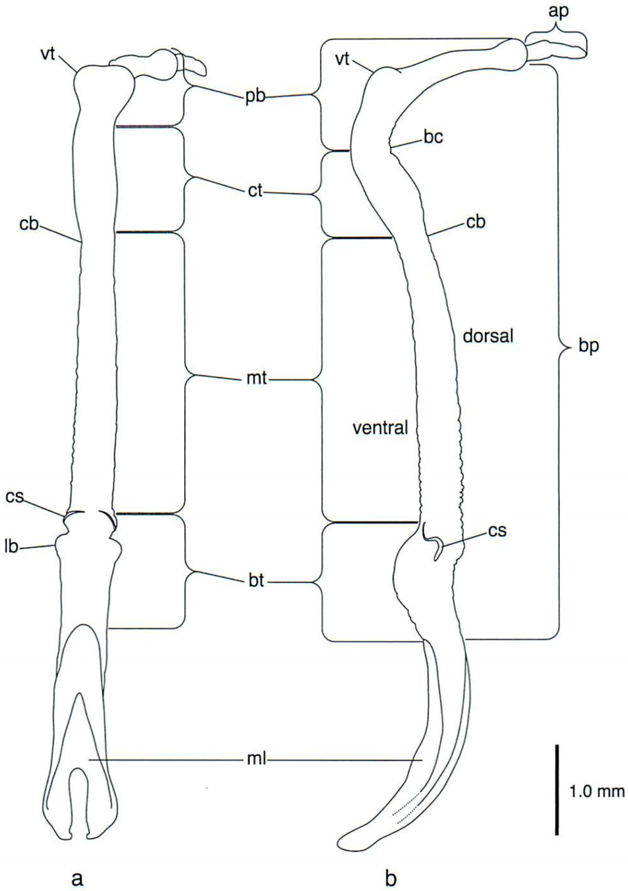

Fig. 1. Schematic view of everted endophallus of *Parechthistatus gibber*; a, ventral aspect of endophallus; b, left lateral aspect of endophallus. Abbreviations: ap, apical phallomere; bc, basal curvature of preapical bulb; bp, basal phallomere; bt, basal tube; cb, central bend; cs, crescent sclerites; ct, central trunk; lb, lateral tubercles of basal tube; ml, medial lobe; mt, medial tube; pb, preapical bulb; vt, ventral tubercles of preapical bulb.

Results

Parechthistatus gibber (Bates, 1873)

(Figs. 2–18, 20–36)

Endophallus 2.3–3.2 times as long as median lobe. Basal tube (bt) moderately swollen in profile, 0.5–0.7 times as long as median lobe. Medial tube (mt) 1.0–1.3 times as long as median lobe; with basal half provided with transverse rugae, apical half with microspicules. Central trunk (ct) 0.3–0.6 times as long as median lobe, swollen at middle and covered with microspicules on dorsal surface. Preapical bulb (pb) 0.7–1.0 times as long as median lobe, swollen near apex, covered with microspicules. Ventral tubercles (vt) at basal fifth covered with microtrichia. Crescent sclerites (cs) tongue-shaped in ventral half.

Notes. The endophallic structure of *Parechthistatus gibber* is very similar to that of *Mesechthistatus* species, though barely discriminated from the latter by the thin medial tube and somewhat swollen at the middle of central trunk.

The differences of endophallus between the previously known subspecies of *P. gibber* are as follows: Central trunk in *P. g. longicornis* and *P. g. grossus* is longer than those of other subspecies (0.44–0.59 times as long as median lobe in *P. g. longicornis*; 0.57–0.62 times as in *P. g. grossus* and 0.30–0.44 times as in other subspecies); ventral tubercles of preapical bulb projected in *P. g. grossus* (Figs. 18, 19); ventral tubercles covered with a few microtrichia on surface in *P. g. grossus*; median tube without hair-like microtrichia on ventral surface in *P. g. grossus*, though sparsely provided with them in other subspecies. The hair-like microtrichia on the median tube are usually absent in the local population from Mt. Nonobori, Mie of *P. g. shibatai*, that from Mt. Kôdaiji, Osaka of *P. g. gibber*, and that from Mt. Kuruson, Yamaguchi of *P. g. tanakai*. Therefore, this character is variable among several local populations of the subspecies of *P. gibber*, and may not be a structure useful for separating the subspecies.

Parechthistatus gibber shibatai MIYAKE, 1980

Parechthistatus gibber shibatai MIYAKE, 1980, Kita-Kyûshû no Konchû, Kokura, **27**, p. 74, pl. 6, fig. P; type locality: Mt. Iwawaki, Osaka Pref.

Materials examined. 1 ♂, Torigaike, Ôshika-Mura, Nagano Pref., 15–IX–2002, T. KINOSHITA leg.; 1 ♂, Nishiusuzuka, Fujinomiya-shi, Shizuoka Pref., 12–X–2003, H. NAKAMINE leg.; 1 ♂, Mt. Kadoketa, Hamamatsu-shi, Shizuoka Pref., 6–X–2001, K. SHIKATA leg.; 1 ♂, Mt. Nonobori, Kameyama-shi, Mie Pref., 3–VI–2002, K. AKITA leg.; 1 ♂, Mt. Katsuragi, Kishiwada-shi, Osaka Pref., 30–V–2002, R. MATSUMOTO leg.; 1 ♂, Mt. Wasamata, Kamikitayama-mura, Nara Pref., 8–VI–2002, K. FUJIMORI leg.

Parechthistatus gibber gibber (BATES, 1873)

Echthistatus gibber BATES, 1873, Ann. Mag. nat. Hist., (4), **12**, p. 308; type locality: Maiyasan and Kawatchi.

Materials examined. 1 ♂, Mt. Kôdaiji, Toyono-chô, Osaka Pref., 3–VI–2004, H. NAKAMINE leg.; 1 ♂, Mt. Maya, Kôbe-shi, Hyôgo Pref., 17–VI–2002, H. NAKAMINE leg.; 1 ♂, Mt. Yuzuruha, Minamiawaji-shi, Hyôgo Pref., 23–IX–2003, Y. NAMEDA & N. ÔTSUKA leg.; 1 ♂, Shôdoshima Is., Shôdoshima-chô, Kagawa Pref., 7–VI–2003, Y. NAMEDA leg.

Parechthistatus gibber daisen MIYAKE et TSUJI, 1980

Parechthistatus gibber daisen MIYAKE et TSUJI, 1980, Kita-Kyûshû no Konchû, Kokura, **27**, p. 76; type locality: Hoki Daisen.

Materials examined. 1 ♂, Akazai-keikoku, Shisô-shi, Hyôgo Pref., 26–IX–2004 (emerged out), Y. NAMEDA leg.; 1 ♂, Ôzuku, Okinoshima-chô, Shimane Pref., 6–IX–2004, T. SHIMADA leg.

Parechthistatus gibber tanakai MIYAKE, 1980

Parechthistatus gibber tanakai MIYAKE, 1980, Kita-Kyûshû no Konchû, Kokura, **27**, p. 77, pl. 6, figs. j, k, l; type locality: Tokusa-ue [sic] = Tokusakami, Abu-gun, Yamaguchi Pref., Japan.

Materials examined. 1 ♂, Kidanikyô, Iwakuni-shi, Yamaguchi Pref., 27–V–2002, Y. MATSUMOTO leg.; 1 ♂, Mt. Kuruson, Shimonoseki-shi, Yamaguchi Pref., 12–X–2002, T. MIKAGE leg.

Parechthistatus gibber nankiensis YOKOYAMA, 1969

Parechthistatus nankiensis YOKOYAMA, 1969, Ent. Rev. Japan, Osaka, **21**, p. 59, pl. 7, figs. 3, 4; type locality: Hirai, Kii Kozagawa, Wakayama Pref., Japan.

Material examined. No material examined.

Parechthistatus gibber nakanei MIYAKE, 1980

Parechthistatus gibber nakanei MIYAKE, 1980, Kita-Kyûshû no Konchû, Kokura, **27**, p. 76, pl. 6, fig. O; type locality: Yufuori, Shionoemura, Kagawa Pref.

Materials examined. 1 ♂, Mt. Unpenji, Miyoshi-shi, Tokushima Pref., 13–VI–2004, N. ÔTSUKA leg.; 1 ♂, Mt. Nyotai, Awa-shi, Tokushima Pref., 18–V–2003, Y. NAMEDA leg.

Parechthistatus gibber pseudogrossus MIYAKE, 1980

Parechthistatus gibber pseudogrossus MIYAKE, 1980, Kita-Kyûshû, no Konchû, Kokura, **27**, p. 78, pl. 6, fig. r; type locality: Mt. Tsurugi, Tokushima Pref.

Materials examined. 1 ♂, Mt. Takanawa, Matsuyama-shi, Ehime Pref., 30–IX–1999, T. KONISHI leg.; 1 ♂, Mt. Ishizuchi, Kumakôgen-chô, Ehime Pref., 29–VIII–1998, T. KONISHI leg.; 1 ♂, Mt. Yatsura, Uwajima-shi, Ehime Pref., 29–V–2004, N. ÔTSUKA leg.; 1 ♂, Mt. None, Tôyô-chô, Kôchi Pref., 24–V–2003, Y. NAMEDA & N. ÔTSUKA leg.

Parechthistatus gibber tsushimanus OHBAYASHI, 1961

Parechthistatus gibber tsushimanus OHBAYASHI, 1961, Ent. Rev. Japan, Osaka, **12**, p. 49; type locality: Mt. Ariake, Is. Tsushima.

Material examined. No material examined.

Parechthistatus gibber longicornis Hayashi, 1951

Parechthistatus gibber longicornis HAYASHI, 1951, Ent. Rev. Japan, Osaka, **5**, p. 80; type locality: Mt. Fukuchi, Kokura City, Northern Kyushu, Japan.

Materials examined. 1 ♂, Mt. Sefuri, Kanzaki-shi, Saga Pref., 13–VIII–2002, R. NODA leg.; 1 ♂, Otoko-Ike, Yufu-shi, Ôita Pref., 21–IX–2002, T. MIKAGE leg.; 1 ♂, Kakushimizu, Yufu-shi, Ôita Pref., 29–IX–2002, K. ARAMAKI leg.

Parechthistatus gibber grossus (BATES, 1884)

Echthistatus grossus BATES, 1884, J. Linn. Soc. London, (Zool.), **18**, p. 237; type locality: Yuyama, Japan.

Materials examined. 2 ♂♂, Mt. Shiraga, Asagiri-chô, Kumamoto Pref., 26–X–2001, K. MORI leg.; 1 ♂, Ôjibaru, Takaharu-chô, Miyazaki Pref., 24–X–2001, K. MORI leg.

Hayashiechthistatus inexpectus (HAYASHI, 1959)

(Figs. 19 & 37)

Parechthistatus inexpectus HAYASHI, 1959, Ent. Rev. Japan, Osaka, **10**, p. 56; Kosugidani (alt. 700 m), Yakushima, Japan.

Endophallus about 2.9 times as long as median lobe. Bt moderately swollen in profile, about 0.7 times as long as median lobe. Mt about 1.2 times as long as median lobe, with basal half provided with transverse rugae, apical half with microspicules. Ct about 0.6 times as long as median lobe, swollen at middle, covered with microspicules on dorsal surface. Pb about 0.9 times as long as median lobe, swollen near apex, covered with microspicules. Vt at basal fifth feeble, covered with microtrichia. Cs tongue-shaped in ventral half.

Material examined. 1 ♂, Yakushima Is., Yakushima-chô, Kagoshima Pref., 14–IX–2002, N. OHBAYASHI leg.

Notes. The endophallic structure of *Hayashiechthistatus inexpectus* is almost identical with that of *Parechthistatus gibber grossus*, and is difficult to discriminate in

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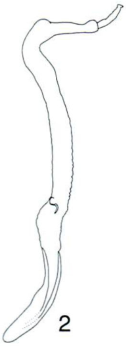
Figs. 2–37. Left lateral aspect of endophallus (2–19) and crescent sclerites (20–37) of *Parechthistatus gibber* and *Hayashiechthistatus inexpectus*. —— 2, 20, *P. g. shibatai* from Mt. Fuji, Shizuoka; 3, 21, *P. g. shibatai* from Mt. Kadoketa, Shizuoka; 4, 22, *P. g. shibatai* from Mt. Nonobori, Mie; 5, 23, *P. g. shibatai* from Mt. Wasamata, Nara; 6, 24, *P. g. shibatai* from Mt. Katsuragi, Osaka; 7, 25, *P. g. gibber* from Mt. Kôdaiji, Osaka; 8, 28, *P. g. gibber* from Awajishima Is., Hyôgo; 9, 27, *P. g. gibber* from Shôdoshima Is., Kagawa; 10, 28, *P. g. daisen* from Akazai, Hyôgo; 11, 29, *P. g. daisen* from Okinoshima Is., Shimane; 12, 30, *P. g. tanakai* from Mt. Kuruson, Yamaguchi; 13, 31, *P. g. nakanei* from Mt. Nyotai, Kagawa; 14, 32, *P. g. pseudogrossus* from Mt. Ishizuchi, Ehime; 15, 33, *P. g. pseudogrossus* from Mt. None, Kôchi; 16, 34, *P. g. longicornis* from Mt. Sefuri, Saga; 17, 35, *P. g. grossus* from Mt. Shiraga, Kumamoto; 18, 36, *P. g. grossus* from Ôjibaru, Miyazaki; 19, 37, *H. inexpectus* from Yakushima Is., Kagoshima.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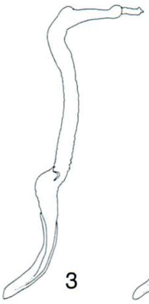
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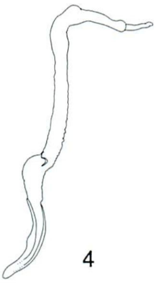
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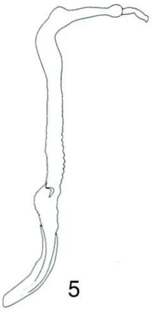
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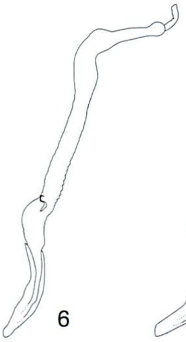
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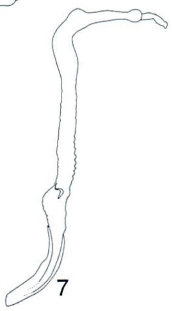
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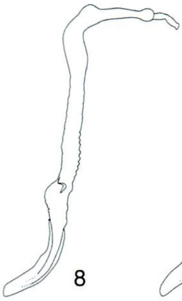
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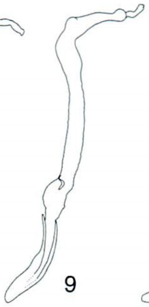
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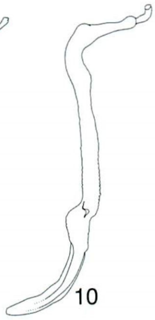
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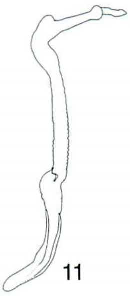
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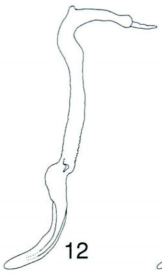
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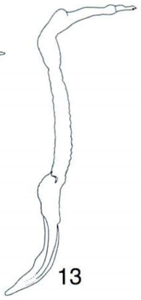
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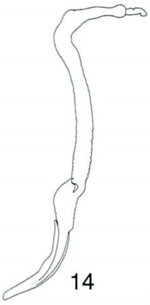
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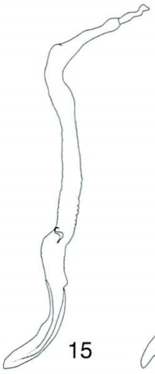
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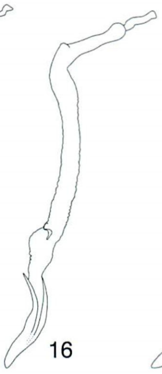
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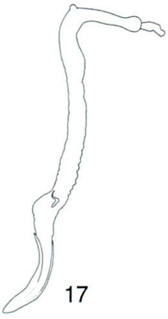
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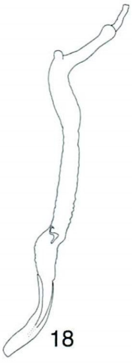
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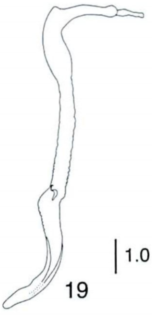
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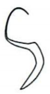
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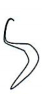
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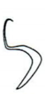
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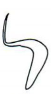
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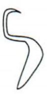
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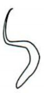
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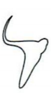
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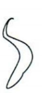
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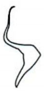
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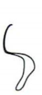
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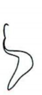
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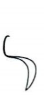
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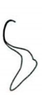
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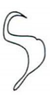
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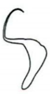
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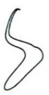
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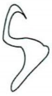
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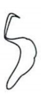
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0.5 mm

their morphology.

Mesechthistatus binodosus (WATERHOUSE, 1881)

(Figs. 38–41, 52–55)

Endophallus 2.3–2.8 times as long as median lobe. Bt moderately swollen in profile, about 0.5 times as long as median lobe. Mt 1.0–1.2 times as long as median lobe, with basal half provided with transverse rugae, apical half with microspicules and also with sparse hair-like microtrichia on ventral surface. Ct 0.4–0.5 times as long as median lobe, swollen at middle, covered with microspicules on dorsal surface. Pb 0.6–0.8 times as long as median lobe, swollen near apex, covered with microspicules. Vt at basal fifth covered with microtrichia. Cs tongue-shaped in ventral half.

Notes. The endophallic structure of *Mesechthistatus binodosus* is almost identical with that of *M. furciferus meridionalis*, and difficult to discriminate in their morphology. Besides, there is no difference in the endophallic structure between two subspecies from eastern Honshu and Sado Island.

Mesechthistatus binodosus binodosus (WATERHOUSE, 1881)

Echthistatus binodosus WATERHOUSE, 1881, Trans. ent. Soc. London, **1881**, p. 431; type locality: Tokei [sic] =Tokyo?, Japan.

Materials examined. 1 ♂, Anmon-no-taki, Nishimeya-mura, Aomori Pref., 21–IX–2003, M. TÔYAMA leg.; 1 ♂, Toranosawa-rindô, Nishimeya-mura, Aomori Pref., 21–IX–2003, M. TÔYAMA leg.; 1 ♂, Mt. Shinzan, Oga-shi, Akita Pref., 21–IX–2003, M. TÔYAMA leg.; 1 ♂, Mt. Tahô, Niigata-shi, Niigata Pref., 26–X–2001, H. NAKABAYASHI leg.; 1 ♂, Shiori-tôge, Uonuma-shi, Niigata Pref., 9–VI–2003, H. KONYA leg.; 1 ♂, Mt. Narô, Suzaka-Shi, Nagano Pref., 22–IX–2002, H. NAKAMINE leg.; 1 ♂, Sano, Hakuba-mura, Nagano Pref., 10–X–2000, H. NAKAMINE leg.

Mesechthistatus binodosus insularis HAYASHI, 1955

Mesechthistatus binodulus insularis HAYASHI, 1955, Col. Ill. Ins. Japan, 1, p. 55, foot-note, No. 19; type locality: Sado Is.

Material examined. 1 ♂, Mt. Donden, Sado-shi, Niigata Pref., 28–IX–1999, H. NAKAMINE leg.

Mesechthistatus furciferus (BATES, 1884)

(Figs. 42–47, 56–62)

Endophallus 1.8–2.8 times as long as median lobe. Bt moderately swollen in profile, 0.4–0.6 times as long as median lobe. Mt 0.8–1.2 times as long as median lobe, with basal half provided with transverse rugae, apical half with microspicules and also with sparse hair-like microtrichia on ventral surface. Ct 0.3–0.5 times as long as median lobe, swollen at middle, covered with microspicules on dorsal surface. Pb 0.6–0.8 times as long as median lobe, swollen near apex, covered with microspicules. Vt at basal fifth covered with microtrichia. Cs tongue-shaped in ventral half.

Notes. The endophallic structure of *Mesechthistatus furciferus* is similar to that of *M. binodosus*.

Vt are projected in *M. furciferus furciferus* (Figs. 42, 43, 44) instead of conical in *M. f. meridionalis* (Figs. 45, 46, 47).

Mesechthistatus furciferus furciferus (BATES, 1884)

Echthistatus furciferus BATES, 1884, J. Linn. Soc. London, (Zool.), **18**, p. 237; type locality: Maigasan [sic] = Mayasan, Hiogo, Japan.

Materials examined. 1 ♂, Mt. Oike, Inabe-shi, Mie Pref., 16–IX–2001, K. AKITA leg.; 1 ♂, Ashû, Nantan-shi, Kyoto Pref., X–2000, M. TÔYAMA leg.; 1 ♂, Mt. Hachigamine, Nantan-shi, Kyoto Pref., 15–X–2006, H. NAKAMINE leg.; 1 ♂, Mt. Ôe, Fukuchiyama-shi, Kyoto Pref., 14–X–2001, H. NAKAMINE leg.; 1 ♂, Nasa, Toyooka-shi, Hyôgo Pref., 13–X–2001, H. NAKAMINE leg.; 1 ♂, Tokose, Toyooka-shi, Hyôgo Pref., 15–V–2002, M. MATSUNAGA leg.; 1 ♂, Itoi-keikoku, Asago-shi, Hyôgo Pref., 5–X–2002, H. NAKAMINE leg.

Mesechthistatus furciferus meridionalis (HAYASHI, 1951)

Echthistatus? binodosus subsp. *meridionalis* HAYASHI, 1951, Ent. Rev. Japan, Osaka, **5**, p. 79; type locality: Mt. Ohmine, Nara Pref., Honshu, Japan.

Materials examined. 1 ♂, Mt. Shiratori, Itoigawa-shi, Niigata Pref., 28–X–2001, H. NAKABAYASHI leg.; 1 ♂, Mt. Hôryû, Wajima-shi, Ishikawa Pref., 29–IX–2002, H. NAKAMINE leg.; 1 ♂, Mt. Hôonji, Katsuyama-shi, Fukui Pref., 10–X–2004, H. NAKABAYASHI leg.; 2 ♂♂, Mt. Daibutsuji, Eiheiji-chô, Fukui Pref., 4–X–2004, H. NAKAMINE leg.; 1 ♂, Mt. Jôzan, Echizen-chô, Fukui Pref., 11–X–2004, H. NAKABAYASHI leg.; 1 ♂, Ômigawa, Otari-mura, Nagano Pref., 9–X–2000, H. NAKAMINE leg.; 1 ♂, Nanakura, Ômachi-shi, Nagano Pref., 20–X–2001, S. TSUYUKI leg.; 1 ♂, Sakai-tôge, Matsumoto-shi, Nagano Pref., 22–IX–2007, H. NAKAMINE leg.; 1 ♂, Hiwada-kôgen, Takayama-shi, Gifu Pref., 23–IX–2007, H. NAKAMINE leg.

Mesechthistatus taniguchii (SEKI, 1944)

(Figs. 48, 49, 62 & 63)

Echthistatus taniguchii SEKI, 1944, Ins. Wld. Gifu, **48**, p. 168, fig.: type locality: Mt. Kiso-koma, Nagano Pref., Japan.

Endophallus 1.7–2.4 times as long as median lobe. Bt moderately swollen in profile, 0.4–0.5 times as long as median lobe. Mt 0.8–0.9 times as long as median lobe, with basal half provided with deep transverse rugae, apical half with microspicules and also with sparse hair-like microtrichia on ventral surface. Ct 0.4–0.5 times as long as median lobe, swollen at middle, and covered with microspicules. Pb 0.6–0.8 times as long as median lobe, swollen near apex, covered with microspicules. Vt at basal fifth covered with microtrichia. Cs triangular in ventral half.

Materials examined. 1 ♂, Maruyama-rindô, Masuho-chô, Yamanashi Pref., 8–X–2001, T. KOBAYASHI leg.; 1 ♂, Yadehara-rindô, Kawakami-mura, Nagano Pref., 4–IX–2004, T. KOBAYASHI leg.; 1 ♂, Fudôshimizu, Fujimi-machi, Nagano Pref., 24–IX–2005, H. NAKAMINE leg.; 1 ♂, Ôdaira-tôge, Iida-shi, Nagano Pref., 18–IX–2004, H. NAKAMINE leg., 2 ♂♂, Kisokoma-kôgen, Kisofukshima-machi, Nagano Pref., 19–IX–2004, H. NAKAMINE leg.; 1 ♂, Nigorigo-tôge, Takayama-shi, Gifu Pref., 19–IX–2004, H. NAKAMINE leg.; 1 ♂, Mt. Kadoketa, Hamamatsu-shi, Shizuoka Pref., 6–X–2001, H. NAKAMINE leg.

Notes. Mesechthistatus taniguchii is a unique species that is clearly different in the endophallic structure from the other species of the Japanese Phrissomini. The basal half of medial tube is provided with deep transverse rugae, central trunk is covered with microspicules on both dorsal and ventral surfaces, and the crescent sclerite is triangular in the ventral half.

Mesechthistatus fujisanus HAYASHI, 1957

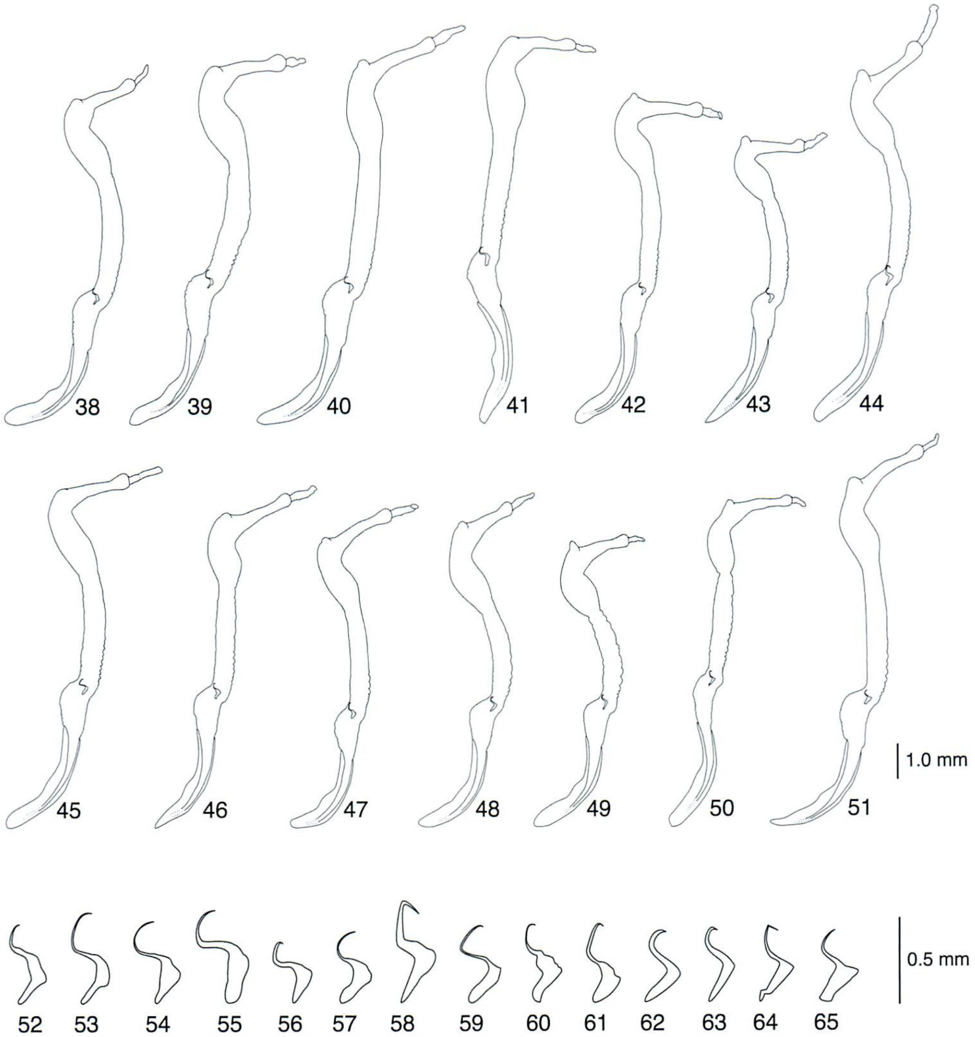
(Figs. 50, 51, 64 & 65)

Mesechthistatus fujisanus HAYASHI, 1957, Ent. Rev. Japan, Osaka, **8**, p. 46, fig. 2; Mt. Fuji (3-gôme), Shizuoka Pref.

Endophallus 2.0–2.8 times as long as median lobe. Bt moderately swollen in profile, 0.4–0.6 times as long as median lobe. Mt 0.9–1.0 times as long as median lobe, with basal half provided with transverse rugae, apical half with microspicules and also with sparse hair-like microtrichia on ventral surface. Ct 0.4–0.5 times as long as median lobe, swollen at middle, and covered with microspicules on dorsal surface and on a small area of ventral surface. Pb 0.7–0.8 times as long as median lobe, swollen near apex, covered with microspicules. Vt at basal fifth covered with microtrichia. Cs tongue-shaped in ventral half.

Materials examined. 1 ♂, Hikawa-rindô, Enzan-shi, Yamanashi Pref., 23–X–2004, S. SAITÔ leg.; 1 ♂, Mt. Tenjin, Narusawa-mura, Yamanashi Pref., T. KOBAYASHI leg.; 2 ♂♂, Takinoirisawa, Ueda-shi, Nagano Pref., 22–IX–2002, H. NAKAMINE leg.; 1 ♂, Sanjiro, Matsumoto-shi, Nagano Pref., 21–IX–2002, S. SAITÔ leg.; 1 ♂, Kowashimizu, Suwa-shi, Nagano Pref., 25–IX–2005, H. NAKAMINE leg.

Notes. The endophallic structure of *Mesechthistatus fujisanus* is barely discriminated from the other species of the Japanese Phrissomini by the presence of microspic-



Figs. 38–65. Left lateral aspect of endophallus (38–51) and crescent sclerites of *Mesechthistatus* spp. —— 38, 52, *M. binodosus binodosus* from Mt. Shirakami, Aomori; 39, 53, *M. b. binodosus* from Oga Penin., Akita; 40, 54, *M. b. binodosus* from Shiori-tôge, Niigata; 41, 55, *M. b. insularis* from Mt. Donden, Sado Is., Niigata; 42, 56, *M. furciferus furciferus* from Mt. Oike, Mie; 43, 57, *M. f. furciferus* from Mt. Hachigamine, Kyoto; 44, 58, *M. f. furciferus* from Tokose, Hyôgo; 45, 59, *M. f. meridionalis* from Ômigawa, Nagano; 46, 60, *M. f. meridionalis* from Sakai-tôge, Nagano; 47, 61, *M. f. meridionalis* from Hiwada-kôgen, Gifu; 48, 62, *M. taniguchii* from Maruyama-rindô, Yamanashi; 49, 63, *M. taniguchii* from Kisokoma-kôgen, Nagano; 50, 64, *M. fujisanus* from Mt. Tenjin, Yamanashi; 51, 65, *M. fujisanus* from Takinoirisawa, Nagano.

ules on the dorsal surface and in a small area of the ventral surface of the central trunk.

Discussion

Although morphologically similar in the endophallus and crescent sclerites among *Mesechthistatus* species, several diagnostic characters are recognized especially in those of *M. taniguchii* (Figs. 48, 49, 62, 63) (see TOKI & KUBOTA, 2007); vt are developed, mt is strongly rugged on the surface, cs is triangular in the ventral half, ct are covered with microspicules on the whole surface, though covered with only on the dorsal surface in other *Mesechthistatus* species. Only the species is *Mesechthistatus fujisanus* that has microspicules in a small area of ventral surface of ct. Although TOKI and KUBOTA (2007) reported the absence of hair-like microtrichia on the ventral surface of mt in *M. taniguchii*, we found that structure on mt of the same species.

The endophallic structures mentioned above are no doubt similar to all the Japanese species of the Phrissomini. It is suggested that the structure of endophallus does not function as physical mechanism in precopulatory isolation between the six Japanese species belonging to three genera. Factually, the intergeneric and interspecific hybrids have been usually discovered in their distributional boundary (see TAKAKUWA *et al.*, 2004), and the mitochondrial introgression supports their hybridization (NAKAMINE & TAKEDA, 2008 a, b). However, the three genera and six species of Japanese Phrissomini are clearly classified by external morphology. It is necessary to make research on the ecological traits and more detailed examination of external and genitalic morphology in order to solve the speciation of those species.

Acknowledgements

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要　　約

中峰　空・竹田真木生：日本産コブヤハズカミキリ族の雄交尾器内袋構造. —— 日本に分布するコブヤハズカミキリ族3属6種の反転・膨隆させた♂交尾器内袋の構造について，詳細に記

載し，図示した．日本産3属6種については，種間のみならず，属間においても形態的な差異は軽微であることから，交尾器の内袋構造が交尾前隔離の物理的機構として作用していない可能性が示唆された．

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Notes on Phylogenetic Relationships of the Tribe Phrissomini (Coleoptera, Cerambycidae) Inferred from Mitochondrial COI Gene Sequences

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The tribe Phrissomini THOMSON, 1860 consists of flightless longicorn beetles with atrophied hindwings. Three genera, including the following six species of this tribe are distributed in and endemic to Japan, *Hayashiechthistatus inexpectus* (HAYASHI), *Parechthistatus gibber* (BATES), *Mesechthistatus binodosus* (WATERHOUSE), *M. furciferus* (BATES), *M. taniguchii* (SEKI) and *M. fujisanus* HAYASHI. Molecular phylogenetic approach is a method of utility to investigate the phylogenetic relationships at inter-taxon level and chronological distance of divergence. We have already reported molecular analyses on phylogeny, both intergeneric one [for *Parechthistatus gibber* and *Hayashiechthistatus inexpectus* (NAKAMINE & TAKEDA, 2008 a)] and intrageneric one [for four *Mesechthistatus* species (NAKAMINE & TAKEDA, 2008 b)]. However, we have not published our results of molecular phylogenetic analysis at intra-tribe level. Here we provide the phylogenetic relationships by the analysis that was carried out based on partial sequences from the mitochondrial cytochrome oxidase subunit I (COI) gene from six different species of tribe Phrissomini.

Materials and Methods. The analytical methods are the same as already described by NAKAMINE & TAKEDA (2008 a, 2008 b). Two lamiine species, *Plectrura metallica yoshihiroi* TAKAKUWA and *Dolichoprosopus yokoyamai* (GRESSITT) were used as outgroup.

Results and discussion. Figure 1 shows the maximum likelihood tree of the mitochondrial

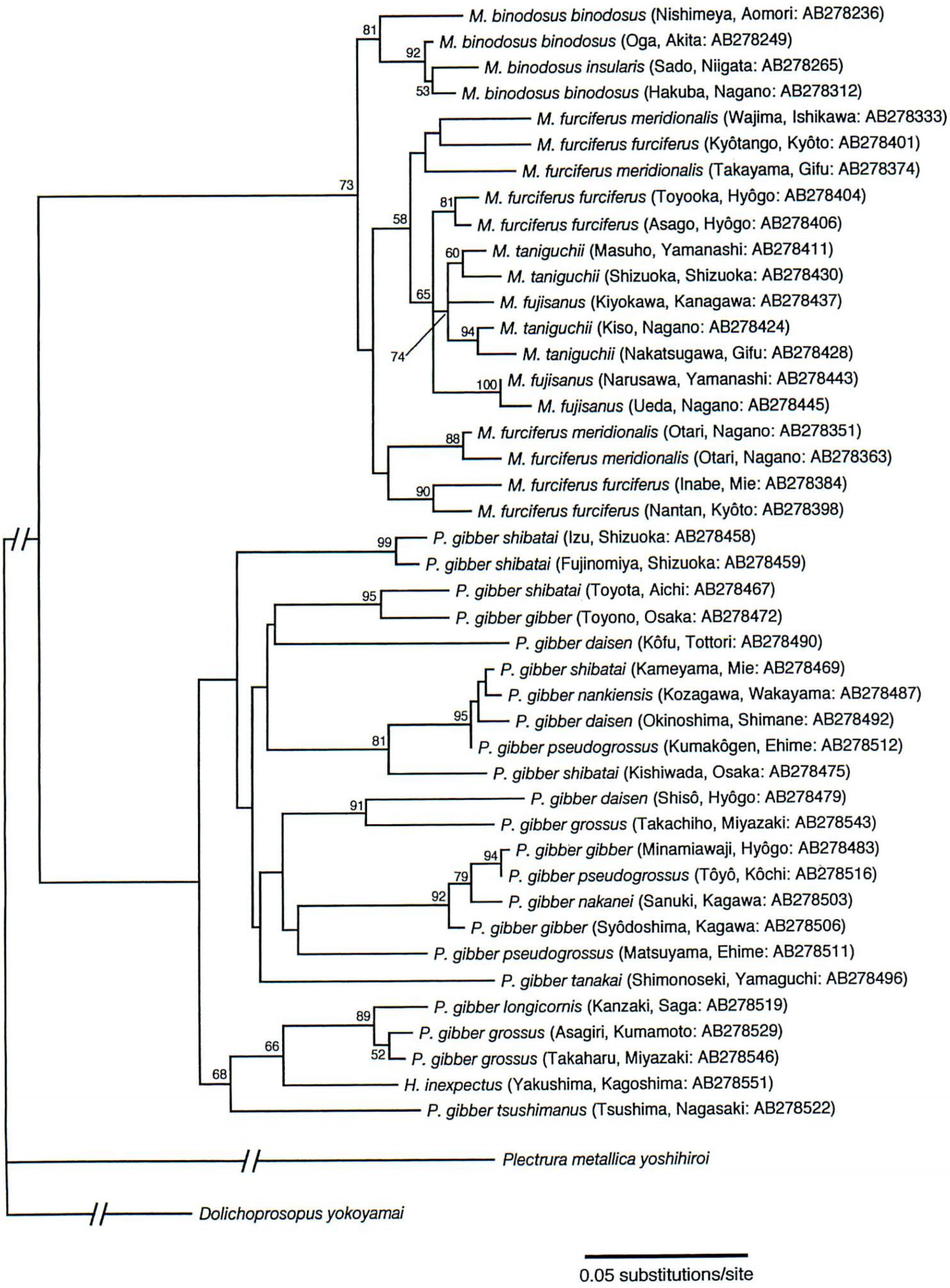
M. binodosus binodosus (Nishimeya, Aomori: AB278236)
M. binodosus binodosus (Oga, Akita: AB278249)
M. binodosus insularis (Sado, Niigata: AB278265)
M. binodosus binodosus (Hakuba, Nagano: AB278312)
M. furciferus meridionalis (Wajima, Ishikawa: AB278333)
M. furciferus furciferus (Kyôtango, Kyôto: AB278401)
M. furciferus meridionalis (Takayama, Gifu: AB278374)
M. furciferus furciferus (Toyooka, Hyôgo: AB278404)
M. furciferus furciferus (Asago, Hyôgo: AB278406)
M. taniguchii (Masuho, Yamanashi: AB278411)
M. taniguchii (Shizuoka, Shizuoka: AB278430)
M. fujisanus (Kiyokawa, Kanagawa: AB278437)
M. taniguchii (Kiso, Nagano: AB278424)
M. taniguchii (Nakatsugawa, Gifu: AB278428)
M. fujisanus (Narusawa, Yamanashi: AB278443)
M. fujisanus (Ueda, Nagano: AB278445)
M. furciferus meridionalis (Otari, Nagano: AB278351)
M. furciferus meridionalis (Otari, Nagano: AB278363)
M. furciferus furciferus (Inabe, Mie: AB278384)
M. furciferus furciferus (Nantan, Kyôto: AB278398)
P. gibber shibatai (Izu, Shizuoka: AB278458)
P. gibber shibatai (Fujinomiya, Shizuoka: AB278459)
P. gibber shibatai (Toyota, Aichi: AB278467)
P. gibber gibber (Toyono, Osaka: AB278472)
P. gibber daisen (Kôfu, Tottori: AB278490)
P. gibber shibatai (Kameyama, Mie: AB278469)
P. gibber nankiensis (Kozagawa, Wakayama: AB278487)
P. gibber daisen (Okinoshima, Shimane: AB278492)
P. gibber pseudogrossus (Kumakôgen, Ehime: AB278512)
P. gibber shibatai (Kishiwada, Osaka: AB278475)
P. gibber daisen (Shisô, Hyôgo: AB278479)
P. gibber grossus (Takachiho, Miyazaki: AB278543)
P. gibber gibber (Minamiawaji, Hyôgo: AB278483)
P. gibber pseudogrossus (Tôyô, Kôchi: AB278516)
P. gibber nakanei (Sanuki, Kagawa: AB278503)
P. gibber gibber (Syôdoshima, Kagawa: AB278506)
P. gibber pseudogrossus (Matsuyama, Ehime: AB278511)
P. gibber tanakai (Shimonoseki, Yamaguchi: AB278496)
P. gibber longicornis (Kanzaki, Saga: AB278519)
P. gibber grossus (Asagiri, Kumamoto: AB278529)
P. gibber grossus (Takaharu, Miyazaki: AB278546)
H. inexpectus (Yakushima, Kagoshima: AB278551)
P. gibber tsushimanus (Tsushima, Nagasaki: AB278522)
Plectrura metallica yoshihiroi
Dolichoprosopus yokoyamai
81
92
53
73
58
81
60
65
94
74
100
88
90
99
95
95
81
91
94
79
92
89
66
52
68
0.05 substitutions/site

Fig. 1. A maximum likelihood phylogenetic tree based on the mitochondrial COI gene sequences of the Phrissomini. The bootstrap value is indicated at each node (when>50%). The accession number for DDBJ, EMBL and GenBank is indicated after locality where the sample was collected. Note. Since the outgroup branch was too long, it was omitted.

COI gene of the tribe Phrissomini. The average branch length at ancestral node to tips is 0.082 in *Parechthistatus/Hayashiechthistatus* lineage and ditto branch length is 0.041 in *Mesechthistatus* lineage. This results suggest that the mitochondrial COI gene haplotypes of *Parechthistatus/Hayashiechthistatus* lineage diverged in an older age than the radiation of *Mesechthistatus* lineage.

The estimation of the divergence date based on DNA sequence data is one of the major aims for molecular phylogenetic analyses. The evolutionary rate of the COI gene has already been estimated in other insects, and the values range from 1.5% to 2.3% per 1 million years (see details BROWER, 1994; FARRELL, 2001; QUEK *et al*., 2004; SOTA & HAYASHI, 2007). These values were used to estimate the date of divergence to *Parechthistatus/Hayashiechthistatus* lineage and *Mesechthistatus* lineage in this report. The average value for genetic divergence between *Parechthistatus/Hayashiechthistatus* and *Mesechthistatus* was 9.68±0.62 (mean±SD) %. Application of the estimated values for the evolutionary rate of the COI gene (1.5% to 2.3%) dated the divergence of *Parechthistatus/Hayashiechthistatus* and *Mesechthistatus* between 6.45 and 4.2 million years ago. This suggests that *Parechthistatus/Hayashiechthistatus* and *Mesechthistatus* diverged at the end of the Miocene epoch through the early Pliocene epoch in the Tertiary era.

Figure 1 shows that *Hayashiechthistatus inexpectus* was included in the *Parechthistatus* lineage. This result suggests the possibility that *H. inexpectus* has speciated from *P. gibber*. However, there is a possibility that original mtDNA haplotype of *H. inexpectus* has been extinguished by introgressive hybridization between *P. gibber* population and *H. inexpectus* (NAKAMINE & TAKEDA, 2008 a).

In Figure 1, *M. binodosus* is shown as monophyletic. However, *M. furciferus*, *M. taniguchii*, and *M. fujisanus* are not monophyletic, forming instead a complex. These results suggest that it was caused by introgressive hybridization or lineage sorting of ancestral polymorphism (NAKAMINE & TAKEDA, 2008 b).

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New Taxa and Record of the Genus *Necydalis* (Coleoptera, Cerambycidae) from Yunnan, Southwest China

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Abstract A new species of the subgenus *Necydalisca* Plavilstshikov is described from Yunnan in Southwest China under the name *N.* (*Necydalisca*) *oblonga* sp. nov. Though the new species is provisionally placed in the subgenus *Necydalisca* Plavilstshikov, it is somewhat similar in facies to the members of the nominotypical subgenus. A peculiar new subspecies of *N.* (*Necydalis*) *hirayamai* Ohbayashi is described from Yunnan under the name *N.* (*N.*) *h. flava* ssp. nov. The new subspecies is similar in coloration to *N.* (*N.*) *h. flemonea* Takakuwa et Niisato from northern Vietnam. *Necydalis* (*Necydalis*) *niisatoi* Holzschuh is recorded for the first time from Yunnan.

Since the earlier study by Gressitt (1951), ten new members have been added to the necydaline fauna of mainland China (Chen, 1991; Pu, 1992; Niisato & Pu, 1998; Niisato, 2004; Niisato & Yagi, 2005), and a total of fourteen members of the genus have so far been known from the territory of China excluding Taiwan. Through the courtesy of my cooperators, I had an opportunity to examine three *Necydalis* species which were recently collected from Yunnan. After a close examination it is revealed that one of them is *N. niisatoi* Holzschuh originally described from Sichuan, and the other two belong to a remarkable new species of the subgenus *Necydalisca* Plavilstshikov and a peculiar new subspecies of *N.* (*Necydalis*) *hirayamai* Ohbayashi. In the following lines, I will newly describe and record them from Yunnan Province of Southwest China.

Before going further, I would like to thank Dr. Shun-Ichi Uéno for his constant guidance and to Mr. Theodore L. Childers for reading the original draft of this paper. My thanks are also due to Mr. Nobuhiko Katsura for arranging access to invaluable material.

Necydalis (*Necydalisca*) *oblonga* sp. nov.

(Figs. 1, 8–12)

Body length (from apical margin of clypeus to abdominal apex) 14.5 mm in ♂.

Relatively slender and small-sized species, with short broad body, almost flattened elytra with almost rounded apices, and long antennae almost attaining to the abdominal apex.

Male. Colour black with brownish elytra and appendage, moderately shiny; mouthparts blackish brown, with clypeus except for apical margin black; antennae brown in segments 2–5, dark brown in apical six segments, black in scape except for brown apex; elytra dark yellowish brown and more or less weakly shiny, infuscate in arcuate line from external side of basal fourth to sutural side of apical 3/8; abdomen dark brown, though largely infuscate in middle of each tergite; legs brown, infuscate in fore and mid tarsi, dull yellow in hind tarsi.

Head large, transverse quadrate including weakly prominent eyes in dorsal view, distinctly wider than pronotum, 1.4 times in apical width or 1.25 times in the maximum width of pronotum, weakly convex and depressed on occiput, densely coarsely punctured, densely clothed with thin light yellow pubescence, and scattered with long pale yellow hairs; frons 3/5 the length of the basal width, moderately narrowed apicad in slightly arcuate line, weakly convex, triangularly declivous along a deep median groove extending to the posterior margin of convex area before occiput, closely provided with small punctures throughout; clypeus with basal lobe shagreened, with large coarse punctures near middle, fronto-clypeal suture arcuate and distinct; genae a little less than 2/5 the depth of lower eye lobes; tempora obtusely angulate at the posterior corners, not reaching the level of the external margins of eyes; eyes large, weakly prominent. Antennae long and rather slender, almost attaining to abdominal apex, slightly thickened towards apical segments, shagreened in apical eight segments, more or less shiny in basal three, clothed with minute pubescence except for brownish haired scape; scape prominent and 2/3 the length of segment 3, finely shallowly punctured, segments 5–10 gently depressed, segment 7 the longest and 1.4 times as long as segment 3, terminal segment moderately arcuate.

Pronotum rather distinctly convergent to apex which is 4/5 the width of the base, moderately longer than wide (1 : 0.85), distinctly narrower than elytra (0.7 : 1); sides rounded for a short distance from apex, straightly narrowed to apical third, strongly arcuate at a level between apical third and basal fourth, then slightly dilated to base, disc weakly convex in basal 3/4, with a large trapezoidal callosity at a level between apical and basal fourth, largely smooth on surface, rugosely punctured in basal raised area, densely clothed with silvery white pubescence at sides, and rather densely with pale yellow hairs near basal raised area and sparsely so near apex, without pubescence above. Scutellum moderate in size, triangular with rounded apex, densely clothed with pale yellow pubescence.

Elytra short and broad, hardly narrowed to apices, as long as wide, triangularly

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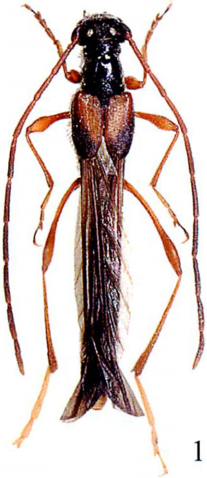
Figs. 1–7. *Necydalis* species from Yunnan and its adjacent localities. —— 1, *N.* (*Necydalisca*) *oblonga* sp. nov., holotype ♂ from "Heishui" of Yunnan; 2, *N.* (*Necydalis*) *hirayamai hirayamai* OHBAYASHI, ♂ from Taiwan; 3, *N.* (*N.*) *h. flemonea* TAKAKUWA et NIISATO, ♂ from Mt. Tam Dao, N. Vietnam; 4, ditto from Pu Mat, NW. Vietnam; 5, *N.* (*N.*) *h. flava* ssp. nov., holotype ♂ from Mt. Leigongyan of Yunnan, SW. China; 6, *N.* (*N.*) *niisatoi* HOLZSCHUH, ♀ from "Baishui" of Yunnan, SW. China; 7, ditto, paratype ♀ from "Zihag" of Sichuan, SW. China.



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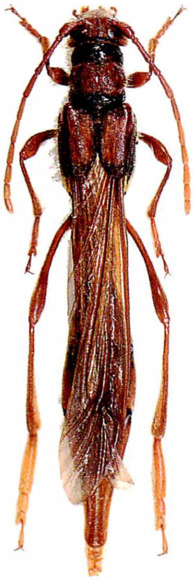

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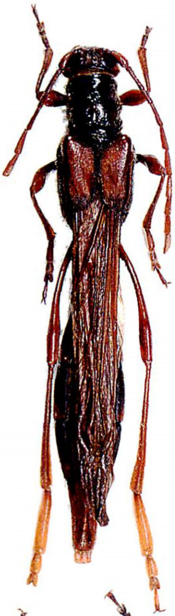

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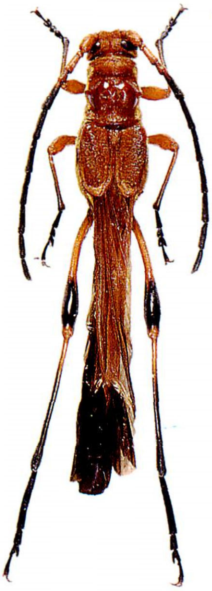

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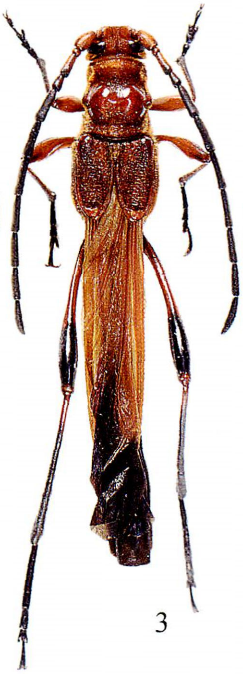

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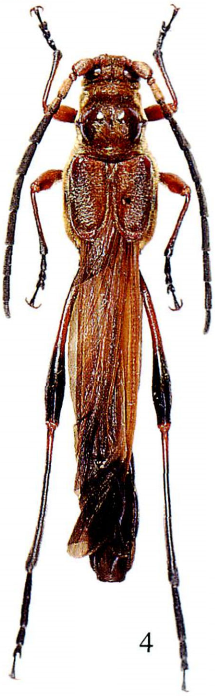

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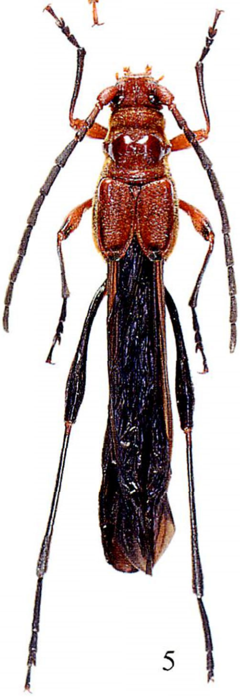

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dehiscent in apical 2/7; sides with humeri moderately prominent forwards, slightly convergent in arcuate line to apices which are completely rounded at external sides and with very obtuse angle at sutural sides, narrowly bordered except for rather broadly bordered sutural lines; disc flattened in profile, slightly depressed near middle and obliquely so before apical 2/5, slightly raised in apical 2/7, coarsely shagreened, irregularly provided with large shallow punctures, densely and almost uniformly clothed with pale yellow pubescence except for almost bare humeri. Hind wings in folded state almost reaching abdominal apex.

Prosternum strongly vertical towards coxal cavities, transversely rugose with a few coarse punctures and pale yellow haired, except for smooth median part before coxal cavities, with intercoxal process strongly compressed at middle and densely punctured, pleural process rested at the sides of triangular apex of intercoxal process. Mesosternum coarsely punctured, clothed with pale yellow hairs, with intercoxal process weakly narrowed apicad and barely reaching anterior part of metasternum, deeply concave at apex. Metasternum moderately convex, rather densely punctured, clothed with pale yellow hairs. Abdomen 3/5 the length of body, rather weakly broadened apicad, broadest at middle of ventrite 4, coarsely shagreened, densely clothed with pale yellow pubescence; basal ventrite almost parallel-sided and almost equal in length to each of ventrites 2–4, ventrites 3 and 4 strongly arcuate at sides and gradually broadened posteriad, anal ventrite 4/5 the length of the preceding, arcuately and distinctly narrowed towards apex which is transversely truncate with minute dents at sides, gradually declivous in apical 2/5 on disc.

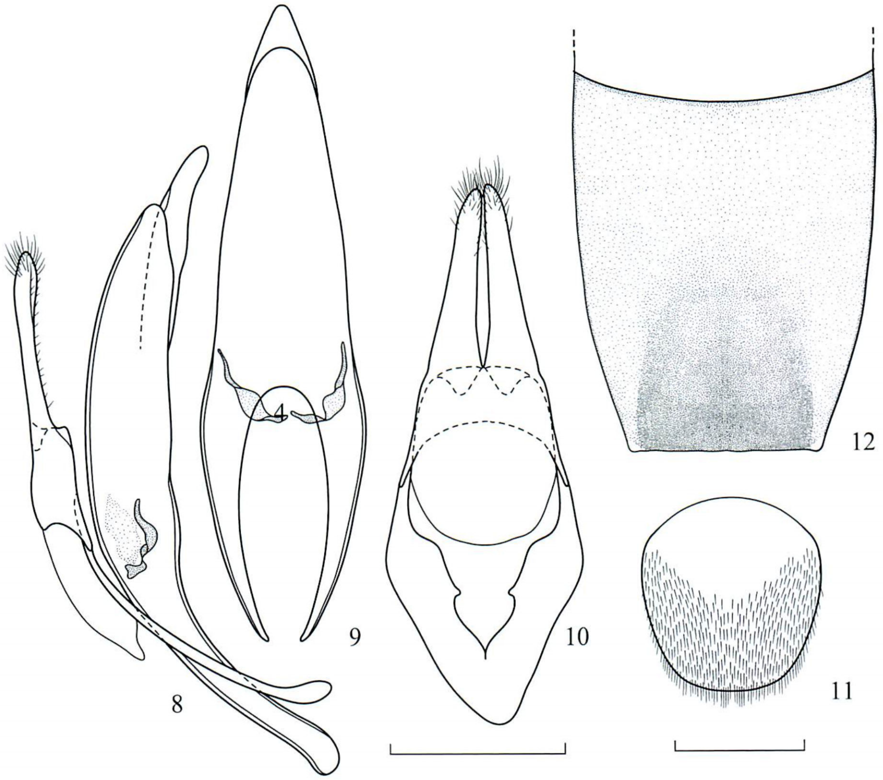
Legs slender and rather long, hind tibiae distinctly exceeding the abdominal apex, hind femur moderately clavate in apical 2/5; tarsi rather slender, 1st hind tarsal segment a little more than twice the length of the following two segments combined.

Median lobe a little less than 1/4 the length of abdomen, short, thick, well convex and hardly arcuate in profile of apical lobe; dorsal plate gradually narrowed in straight line to apex which is broadly rounded, exposing apical fifth of ventral plate; ventral plate slightly arcuate with thickened extremity in profile, narrowed in somewhat sinuate lines to bluntly acute apex in dorsal view. Tegmen nearly 3/4 the length to median lobe; parameres markedly narrowed apicad, approximate at apices of lobes, dehiscent in half the length of paramere measured along the midline, with each lobe gradually narrowed to apex which is a little thickened and provided with a few medium-sized winding setae; ring part forming markedly broad lobes which are fused together in apical 3/8. Tergite 8 almost as long as wide, roundly truncate at apical margin.

Type specimen. Holotype ♂, "CHINA, Yunnan 1994 / HEISHUI env., 28–30. VI / 35 km N of Lijiang / leg. B. Siška & T. Spevár". Deposited in the National Museum of Nature and Science, Tokyo.

Distribution. Yunnan, SW. China.

Notes. Though similar in facies to the nominotypical subgenus, *N. oblonga* sp. nov. should be placed in the subgenus *Necydalisca* PLAVILSTSHIKOV in view of the long and narrow pronotum, the flattened abdomen with the anal ventrite simply declivous in



Figs. 8–12. Male genitalia and abdominal segments of *Necydalis* (*Necydalisca*) *oblonga* sp. nov., holotype from "Heishui" of Yunnan, SW. China. —— 8, Median lobe and tegmen in lateral view; 9, median lobe in dorsal view; 10, tegmen in dorsal view; 11, 8th tergite in dorsal view; 12, anal ventrite in ventral view. Scales 0.5 mm.

apical 3/5 of disc, the structure of male genital organ, especially in the simply narrowed parameres, and rather long and slender 1st hind tarsal segment. This is also a peculiar species even in *Necydalisca* in having the long antennae attaining to the abdominal apex in the male, and the broad elytra with almost flattened disc, and has no close relative in the genus and forms an isolated species-group in the subgenus.

Necydalis (*Necydalis*) ***hirayamai flava*** ssp. nov.

(Figs. 2, 13–17)

Clearly distinguished by very slender body especially in the narrow pronotum from the nominotypical subspecies from Taiwan and *N. h. flemonea* from N. Vietnam, though the coloration is almost identical with that of the latter subspecies. Diagnostic character of the new subspecies are as follows: 1) Body markedly slender among the local populations of *N. hirayamai*, relatively small in size, 23.5 mm in the holotype ♂; 2) colour largely reddish yellow instead of red or reddish orange as in the other subspecies, with infuscate parts almost identical with those of *N. h. flemonea*; 3) pronotum extremely narrow, a little longer than wide, slightly dilated basad and not distinctly so as in the other subspecies, moderately clothed with light yellow pubescence and largely exposing the smooth median callosities; 4) elytra rather narrow, slightly longer than wide, more or less acute at apices; 5) legs long and slender, with 1st hind tarsal segment slender and not broadened laterad, 1.8 times longer than the following two segments combined; anal ventrite almost trapezoidal, weakly narrowed apicad, a little longer than wide, widely and deeply concave in an oval shape in apical 3/5; 8th tergite semicircular with a obtuse dent at middle of apical margin; male genitalia as in Figs. 13–15, with parameres large and very broad, approximate to each other.

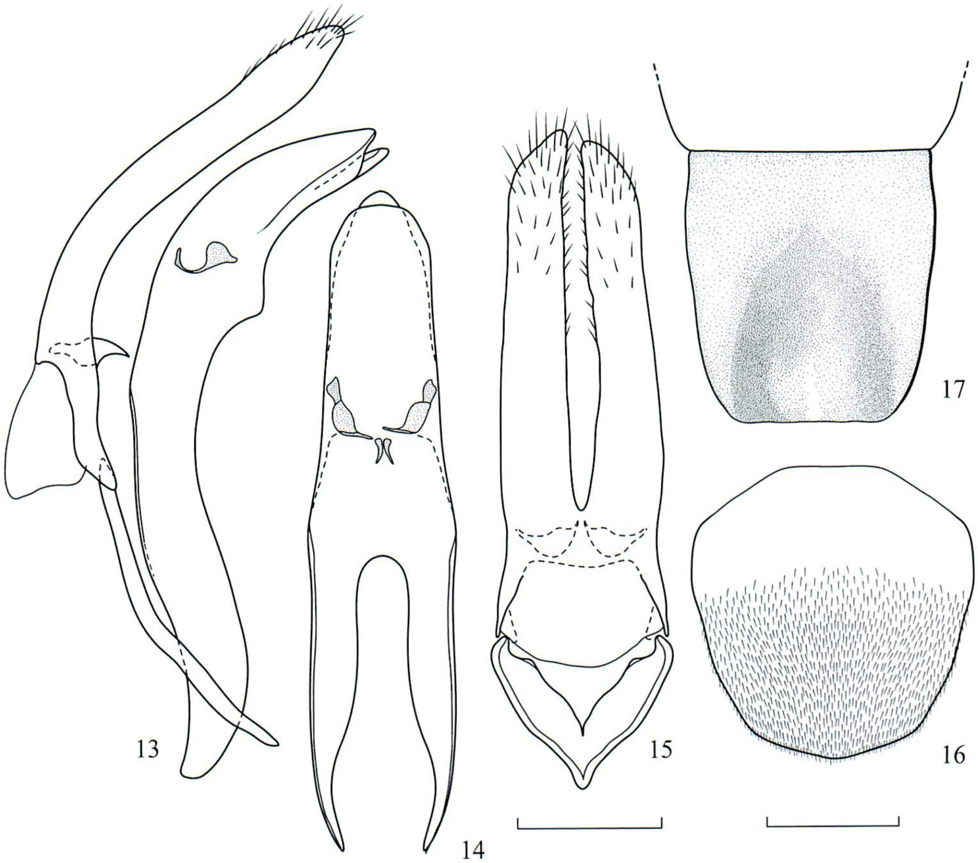
Type specimen. Holotype ♂, Mt. Leigong'yan (雷公岩), Mengla Co., Yunnan Prov., SW. China, 1∼5–VI–2008. Deposited in the National Museum of Nature and Science, Tokyo.

Distribution. Yunnan, SW. China.

Notes. *Necydalis* (*Necydalis*) *hirayamai flemonea* was originally described from Mt. Tam Dao of northern Vietnam as a local population of the Taiwanese species and is clearly distinguished from the latter by the diagnostic characters suggested in the original description; elytra entirely red without black apices as in the nominotypical race, and just as long as wide instead of 0.9 times as long as wide in the nominotypical race; hind femur more weakly clavate in apical 2/5, almost smooth at external sides while it is densely punctured in the nominotypical race. Though almost identical in coloration with *N. h. flemonea*, the present subspecies from Yunnan is distinguished from the other two subspecies by the diagnostic characters mentioned in the above description.

Necydalis hirayamai has so far been known from four isolated localities, *viz*., central Taiwan as the area of the nominotypical race, Mt. Tam Dao and Pu Mat of northern Vietnam as the localities of *N. h. flemonea*, and Mt. Leigong'yan of Yunnan as the type locality of *N. h. flava* ssp. nov. (OHBAYASHI, 1948; TAKAKUWA & NIISATO, 1996; NIISATO, 1998). In addition, a single specimen of the species was collected from Sapa of northern Vietnam according to a personal communication from N. KATSURA. The isolated populations from four or five localities show rather distinct geographical variations and may be placed at the rank of subspecies or independent species. It may be difficult to resolve the exact classification of all the populations of *N. hirayamai*, since we were able to examine only single specimens from two of the four known localities.

Comparative specimens examined. *Necydalis* (*Necydalis*) *hirayamai hirayamai*: 1 ♂, Mt. Kwangtaoshan, Jenai, Nantou Hsien, C. Taiwan, 6–V–1990, C.-C. LUO leg. *Necydalis* (*N.*) *hirayamai flemonea*: 2 ♂♂ (paratypes), Mt. Tam Dao, Vinh Phu Prov., N. Vietnam, 1∼18–VI–1995; 1 ♀, same locality as the preceding, V–2000; 1 ♂, Pu Mat, Nghe An Prov., NW. Vietnam, VI–2008.



Figs. 13–17. Male genitalia and abdominal segments of *Necydalis* (*Necydalis*) *hirayamai flava* ssp. nov., holotype from Mt. Leigong'yan of Yunnan, SW. China. —— 13, Median lobe and tegmen in lateral view; 14, median lobe in dorsal view; 15, tegmen in dorsal view; 16, 8th tergite in dorsal view; 17, anal ventrite in ventral view. Scales 0.5 mm.

Necydalis (*Necydalis*) *niisatoi* HOLZSCHUH, 2003

(Figs. 6–7)

Necydalis niisatoi HOLZSCHUH, 2003, Ent. Basil., **25**, p. 167, fig. 17; type locality: China, W Sichuan, Zihag env., 1500–2000 m.

Specimens examined. 1 ♀, "CHINA — YUNNAN / BAISHUI-3000 m / 26.6 — 3.7.1996 / E. KUČERA leg."; 2 ♀♀ (holotype & paratype), "China, W Sichuan / Zihag env., 1500–2000 m / 25.–30. vi. 1994 / J. Kaláb leg." "PARATYPE / Necydalis niisatoi n. sp. / det. C. Holzschuh 2003".

Distribution. Sichuan and Yunnan (new record), SW. China.

Notes. The single female specimen examined from Yunnan is almost identical with the type series of *N. niisatoi* from "Zihag env. " of Sichuan, but differs from the latter in the following points: 1) pronotum except for black apical and basal margins and head largely reddish brown, instead of dark reddish brown with almost entirely black pronotum; pronotum rather densely punctured instead of very sparsely so; 2) anal tergite roundly truncate at apical margin instead of truncate with a little concavity at middle. It is most probable that the differences mentioned above show the geographical variation in the locality of Yunnan. However, I cannot describe a new subspecies for it since only a single female specimen was available from Yunnan for the present examination.

要約

新里達也：中国雲南省から見つかったホソコバネカミキリ属の新タクサおよび新記録種．——中国雲南省からはこれまでホソコバネカミキリ属のいかなる種も記録されていなかったが，同地域の近年の調査により本論文で記録した3種が新しく発見された．そのうち1種はホソコバネカミキリ亜属に属し，既知のいかなる種とも類縁関係のない顕著な新種で，ほかの2種は近隣の四川省およびベトナムからすでに記録のある種であった．

1) *Necydalis* (*Necydalisca*) *oblonga* sp. nov.: 腹部は平圧され，腹板末端節は先端に向けて単純に傾斜し，後肢第1付節は細長いなどの特徴からホソコバネカミキリ亜属に所属する新種であるが，外観や色調は基亜属の種にむしろ似ていて紛らわしい．ホソコバネカミキリ亜属としても非常に特異な種で，近縁なものはほかに知られていない．

2) *Necydalis* (*Necydalis*) *hirayamai flava* ssp. nov.: ヒラヤマホソコバネカミキリには，台湾の基亜種と北ベトナムのタムダオ山から記載された*N. h. flemonea*の2地域集団が知られていたが，このたび雲南省雷公岩から特異な変異を示す個体が発見されたので，新亜種としてここで命名記載した．本新亜種は既知の集団とは異なり，橙黄色の明るい色調の体をもつが，黒色部のパターンは*N. h. flemonea*と基本的に変わらない．ただし，体形は既知亜種に比べて著しく細く，前胸背板は基部に向けてわずかに広がるだけで，背面隆起は広く無毛かつ平滑，腹部腹板末端節はやや縦長の台形で，先端2/5が幅広く卵形にえぐられるなどの多くの異なる特徴をそなえている．

3) *Necydalis* (*Necydalis*) *niisatoi* HOLZSCHUH: 四川省西部 “Zihag env.,” から記載された種であるが，今回，近隣の雲南省 “Baishui” から1♀が得られた．基準産地の個体と比べると，色調が明るく，前胸背板の点刻はむしろやや密に点刻され，尾節板（腹部第7背板）の先端縁は完全に丸められるなどの違いが認められる．これらの差異はおそらく同種内における地域変異と考えられるが，その違いが比較的軽微であるうえに，検視できた両地域の標本が現状では1〜2個体と少ないことから，新亜種の命名は控えることにした．

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Elytra, Tokyo, **36**(2): 265–266, November 22, 2008

A New *Paramimistena* (Coleoptera, Cerambycidae) from Northeastern Laos

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A total fourteen species of the genus *Paramimistena* have so far been recorded mainly from Indochina and its neighborhood, and a few from Sri Lanka and Borneo. I recently found a peculiar new species of the genus with tricolored elytra in the field survey of northeastern Laos, and am going to describe it in the following lines. I am grateful to Mr. Hiroyuki Wakahara for his kind support in the field way.

Paramimistena tricolor sp. nov.

(Fig. 1)

Body length 4.2–4.6 mm (measured from apical margin of clypeus to abdominal apex).

Belonging to the *P. polyalthiae* group (Holzschuh, 1999) though slightly different in a few critical details from other members of the group. Colour black to brownish black, brown in mouthparts, antennae, legs, basal margin of pronotum, sides of mesosternum and metepisternum,

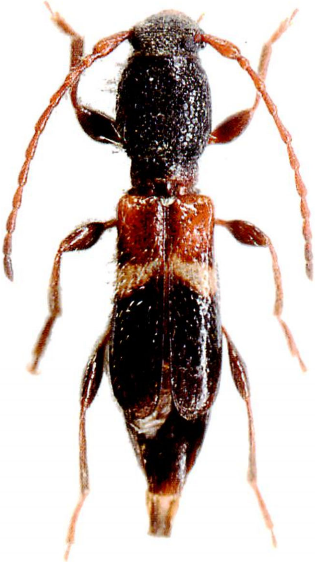

Fig. 1. *Paramimistena tricolor* sp. nov., holotype, ♀, from Ban Saleui, Houaphan Province of Laos.

though more or less darker in apical three segments of antenna and femoral clubs; elytra brown in basal 3/10, almost black in apical 5/9, and with arcuate white band near basal 2/5 between brown and black areas. Body sparsely clothed with erect long pale hairs, with a linear fringe of pale pubescence before base of pronotum though disappearing according to individuals.

Head slightly narrower than pronotum, reticulate throughout, with a smooth median line at center of frons. Antenna reaching apical 2/3 of elytra. Pronotum elongate ovate in apical 5/6, strongly constricted in the basal part, a half the length of hind body, 1.2 times as long as the maximum width just before middle, covered with medium-sized reticulations arranged by 18–20 cells along the longitudinal mid-line. Elytra 2.0 times as long as the humeral width, attaining to the apex of tergite 5, slightly exposing the sides of metathorax, rather closely provided with large punctures on basal 2/5, and with a few fine punctures on apical 2/5; sides with humeri quadrately prominent, arcuately divergent to the widest point at apical 2/5, then convergent to rounded apices. Ventral surface of hind body scattered with a few fine punctures. Legs rather short and not stout.

Type series. Holotype ♀, Ban Saleui, 1,200 m in alt., Houaphan Prov., NE. Laos, 29–III–2005, T. NIISATO leg. Paratypes: 1 ♀, same locality as the holotype, 30–III–2005, H. WAKAHARA leg.; 1 ♀, Phu Pan, 1,500 m in alt., Ban Saleui, 31–III–2005, T. NIISATO leg. The holotype is preserved in the National Museum of Nature and Science, Tokyo, and the paratypes are in the private collection of NIISATO.

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Elytra, Tokyo, **36**(2): 267–273, November 22, 2008

A New *Kunbir* (Coleoptera, Cerambycidae) from the Island of Bali, Indonesia

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Abstract A new species of the cerambycid genus *Kunbir* Lameere is described as the first representative of the genus from Bali Island of Indonesia. It has some resemblance to *K. atriapicalis* Gressitt et Rondon from Laos, but can be distinguished by the different colour, elytral punctation, structure of antenna, relative length of hind femur, and the male genital organ.

More than 20 species of the genus *Kunbir* Lameere have been recorded so far from the Oriental Region. Until recently, the distribution of *Kunbir* species was considered to be confined to its northwestern half, basically the continental part including South China, Indochina, Indian Subcontinent, and such peripheral islands as Taiwan and Ceylon. From the extensive region further south, stretching eastwards from the Malayan Peninsula to the Sunda Islands, the region called "Malayana" by Pascoe, there was no record of *Kunbir* species. It was assumed that the genus *Kunbir* is absent in Malayana and therefore its distribution is much more restricted geographically than the sister genus *Merionoeda*, which exists not only in the whole Oriental Region but also in the Australian Region. With the description of *K. lombokiana* Niisato et Yokoi (2008), we have shown that the genus does occur in Malayana and rather surprisingly in Lombok Island, east of Wallace's line in the Australian Region.

In the following lines, we will describe *Kunbir ikuoi* sp. nov. from Bali Island of Indonesia as a second representative of the genus in Malayana, and at the same time the first one from west of Wallace's line. Of the known *Kunbir* species, it is most closely similar to *K. atriapicalis* Gressitt et Rondon from Laos.

We would like to thank Mr. Theodore L. Childers for his critical reading of the draft of this paper. The abbreviations used in the ratios of measurement are already explained in our previous papers (Yokoi & Niisato, 2007, 2008).

Kunbir ikuoi sp. nov.

(Figs. 1–5)

Body length (from apical margin of clypeus to elytral apices) 6.1 mm.

Male. Colour yellowish red, partly black or brownish black, strongly shiny in general; head yellowish red, black in eyes, black though slightly reddish in antenna except for reddish pale brown appendicle of terminal segment; elytra brown except for yellowish red near humeri; scutellum yellowish red; venter of thoraces including coxae and trochanters largely reddish yellow though more or less infuscate at middle of metasternum; abdomen black; fore legs yellowish red except for dark brown tarsus and apical half of tibia, mid and hind legs reddish dark brown except for pale yellowish basal half of femur.

Head moderately projected forwards, moderately convex, narrower than the maximum width of pronotum, HW/PW 0.90, provided with coarse punctures in irregular rows and short erect pale yellow hairs; frons subtrapezoidal, 1/3 the length of basal width, strongly declivous towards the median groove, scattered with coarse punctures and provided with minute erect hairs, FA/FB 0.88; clypeus large, half the length of basal width, strongly narrowed to apex, weakly raised at middle, coarsely punctured throughout and with sparse pale yellow hairs on apical half; genae narrow, 3/7 the depth of lower eye-lobes; eyes medium-sized and weakly prominent, separated from each other by half the width of occiput, widely and very deeply emarginate. Antennae fairly long, almost reaching elytral apices, clothed with minute silvery pubescence, additionally with long flying reddish yellow hairs along basal five segments; scape fairly long, stout and arcuate, strongly thickened near apex, segment 3 thickened near apex, segment 4 a little less so, 3/4 the length of scape and distinctly longer than segment 3, apical seven segments more or less flattened, segments 5–7 obtusely serrate externally, terminal segment bluntly toothed at apex.

Pronotum slightly shorter than the maximum width at middle, slightly convergent to apex, PL/PW 0.93, PA/PW 0.73, PB/PW 0.78, arcuate in basal 3/4 with two pairs of small lateral swellings, one at middle and the other obtuse one closely behind the anterior pair; disc wholly moderately convex though transversally impressed before and behind large median callosity, with a deep transversal groove before base, the callosity interrupted for the basal half by a pair of longitudinal grooves near middle, both of which are linked to the transversal groove, shagreened except for the callosity which is provided with a few pale yellow hairs. Scutellum rounded triangular, almost glabrous, provided with some minute punctures at apex and sides.

Elytra long and moderately wide, EL/EW 2.89, with sides gently prominent at humeri, moderately narrowed in basal 4/7, then arcuate to apices which are moderately rounded; disc evenly flattened, with coarse irregular punctures throughout, the punctures being mostly larger than their interspaces though smaller near humeri, apices and sides, sparsely clothed with short pale yellow hairs.

Venter of thoraces shiny, very sparsely punctured; prosternum with distinctly

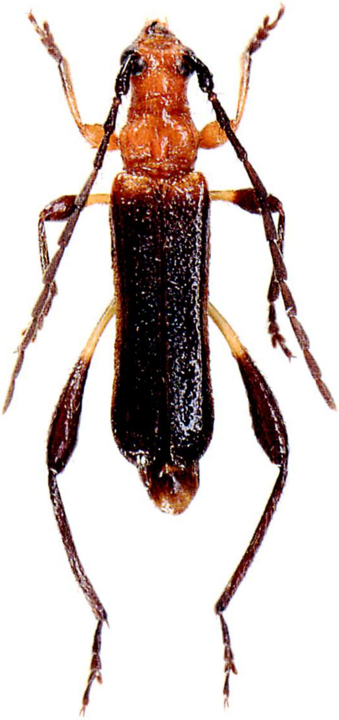
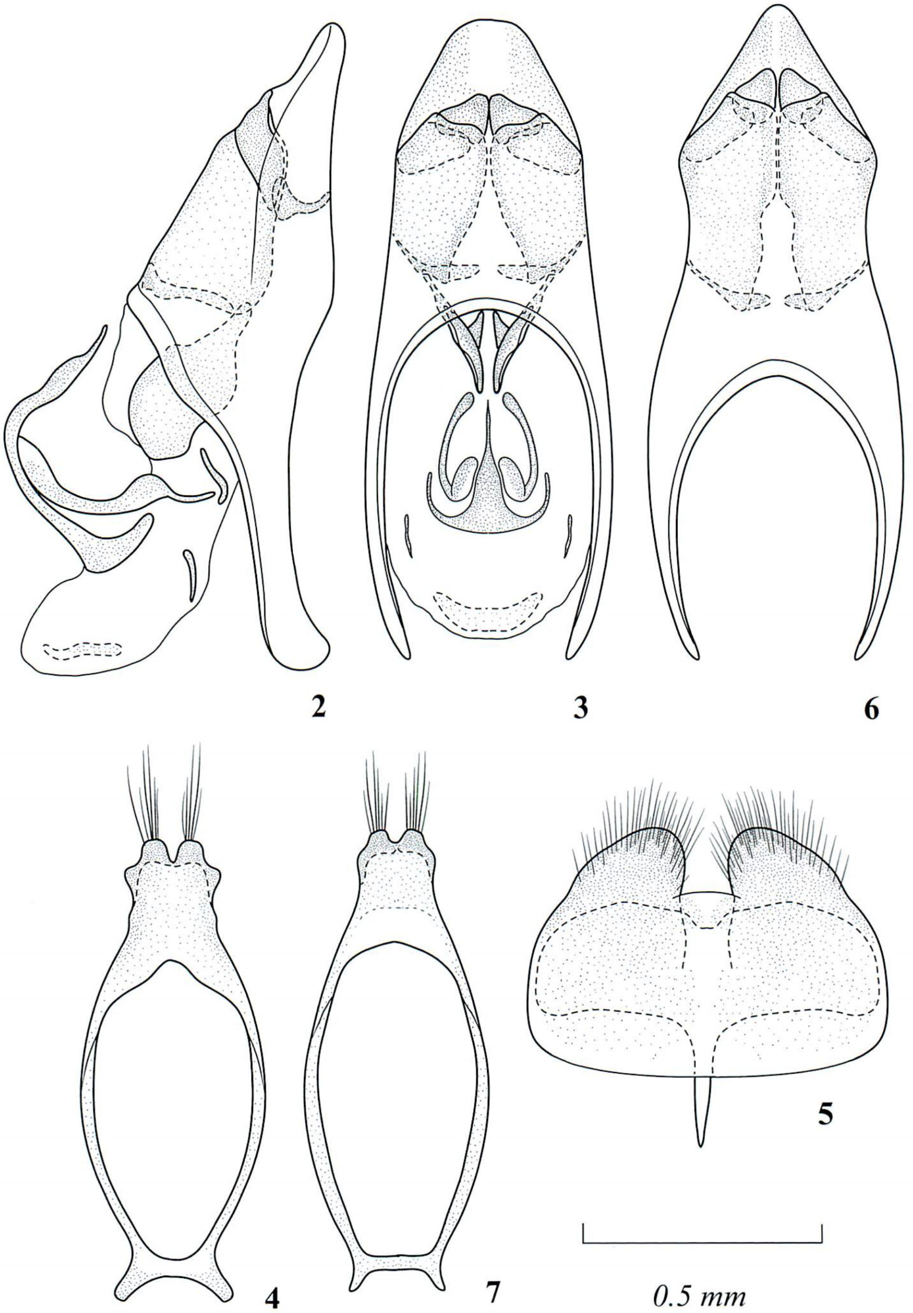


Fig. 1. *Kunbir ikuoi* sp. nov., holotype, ♂, from Bali Island of Indonesia.

compressed inter-coxal process; mesosternum shagreened near middle, with inter-coxal process broad and arcuately emarginate at sides; metasternum barely punctured and sparsely clothed with short erect pale yellow hairs. Abdomen weakly arcuate at sides, sparsely punctured and haired, with basal ventrite about 1/3 the length of abdomen and ventrite 2 approximately 1/5, anal ventrite almost transversely truncate at middle instead of weakly concave in that of *K. atriapicalis*.

Legs slender and moderately long, clothed with erect pale yellow hairs; hind femur just reaching elytral apex, distinctly clavate in apical half, which is strongly swollen at internal side and weakly so at external; hind tibia 4/5 the length of femur, gently clavate and obtusely asperate.

Male genital organ medium-sized and rather lightly sclerotized. Median lobe ordinary spindle-shaped, weakly convex in profile, with sides slightly arcuate in basal halves, gently rounded at apical half then straightly narrowed to apex of ventral plate which is broadly truncate; dorsal plate attaining apical fourth of apical lobe; median struts a little less than a half of median lobe; copulatory pieces as in Figs. 2–3. Tegmen slender, with paramere of 1/6 the length of tegmen, bilobed in apical 2/9 and strongly tuberculate at sides just behind apex, provided with 3–4 relatively short setae. Tergite



Figs. 2–7. Male genital organ of *Kunbir ikuoi* sp. nov. from Bali Island of Indonesia (2–5) and of *K. atriapicalis* GRESSITT et RONDON from central Thailand (6 & 7). —— 2, Median lobe in lateral view; 3 & 6, median lobe in dorsal view (excluding endophallus with copulatory pieces in Fig. 6); 4 & 7, tegmen in dorsal view; 5, 8th abdominal segment in dorsal view.

8 almost circular, dehiscent in apical third, with each lobe broadly rounded and clothed with long hairs at apical margin.

Type specimen. Holotype, ♂, Gunung Prada, Jembrana, Western Bali, Indonesia, 8–XII–2005, Y. YOKOI leg. The holotype is preserved in the National Museum of Nature and Science, Tokyo.

Distribution. Bali, Indonesia.

Etymology. The specific name of this new species is dedicated to the memory of the late Mr. Ikuo YOKOI who is a younger brother of the first author and passed away on 23rd August 2008 in spite of being still young. He was deeply interested in nature and insects in his life time.

Notes. Of the known *Kunbir* species, *K. atriapicalis* GRESSITT et RONDON from Laos bears the greatest resemblance to *K. ikuoi* sp. nov. However, the new species differs in the following characteristics: 1) Meso- and metathoraces are reddish yellow, whereas they are brown to dark brown in *K. atriapicalis*; 2) antennal segment 4 is distinctly longer than segment 3, whereas they are of the same length in *K. atriapicalis*; 3) elytral punctation is coarser and irregular, stretching almost to the apices, whereas puncture is absent near elytral apices in *K. atriapicalis*; 4) hind femur barely reaches the elytral apex, whereas that of *K. atriapicalis* distinctly surpasses the elytral apex by 1/3 to 1/2 of the swollen part of hind femur; 5) median lobe is gently arcuate at sides of basal half and broadly truncate at apex, while distinctly emarginate at sides behind middle and roundly produced at apex in *K. atriapicalis*; paramere is strongly tuberculate at sides just behind apex. *Kunbir forticollis* HOLZSCHUH from Thailand also has certain resemblance to the new species, though it has shorter antennae.

It is interesting to note that *Kunbir ikuoi* sp. nov. is found in Bali Island in the immediate neighborhood of Lombok Island where *K. lombokiana* has recently been recorded. Thus *K. ikuoi* sp. nov. is the easternmost representative of the genus in the Oriental Region, while *K. lombokiana* is the only and westernmost representative in the Australian Region, though the two species only moderately resemble each other. In any event, both the species occur far from the hitherto known distributional range of the genus *Kunbir* in the immediate neighborhood of each other across the Lombok Straits, bridging Wallace's line.

A question arises as to whether *K. ikuoi* sp. nov. and *K. lombokiana* are isolated insular species or the genus *Kunbir* is actually more widely and continuously distributed in the Oriental and Australian Regions than previously assumed, as in the case of the sister genus *Merionoeda*. To answer the question, we need to exploit and study the *Kunbir* fauna of the region more extensively.

The holotype male was collected by Y. YOKOI near a virgin forest in western Bali, 500–600 m in altitude. The collection at a light was probably accidental, as *Kunbir* species are generally not attracted to light.

Corrections

In recent papers, we made two errors in writing the abbreviation and the description as follows.

1) In the Japanese Journal of Systematic Entomology, **13**, p. 187, line 3 from the bottom: insert "FA–apical width of frons" before "FB – basal width of frons".
2) In the Elytra, **36**, p. 4, line 2 from the bottom: for "wider than the maximum width", read "shorter than the maximum width".

要　約

横井彌平太・新里達也：インドネシア・バリ島から発見された *Kunbir* 属の 1 新種. —— *Kunbir* 属は，東洋区北西の大陸部である南中国からインドシナ，インド亜大陸とその近隣地域にかけて 20 種以上の分布が知られていたが，これより南東のマレー半島およびインドネシア諸島を含む広大な島嶼地域からの記録はなかった．ところが最近になって，インドネシアのロンボック島から *K. lombokiana* Niisato et Yokoi が発見され，従来知られていた分布域から遠く離れたオーストリア区西端にも本属の種の分布することが明らかになった．本論文ではさらに，ロンボック島の西隣に位置するバリ島から最近になって発見された本属の 1 新種に対して，*Kunbir ikuoi* sp. nov. と命名記載した．バリとロンボックの隣接する両島は，狭隘なロンボック海峡によって分離され，この海峡が東洋区とオーストラリア区を分かつウァラス線の一部を構成していることはよく知られている．今回の一連の発見により，本属の既知分布域から遠く隔てられたインドネシア諸島に，ウァラス線をまたいで 2 種が分布することが明らかになった．

Kunbir ikuoi sp. nov. は，ラオスから記載された *K. atriapicalis* Gressitt et Rondon にもっとも近縁と考えられるが，色彩や触角，後腿節と体の相対的位置，上翅の点刻，雄交尾器などの特徴から明らかに区別することができる．隣接するロンボック島から記載された *K. lombokiana* はむしろ *K. telephoroides* Lameere に近く，本種とそれほど近縁な種ではない．*Kunbir ikuoi* sp. nov. と *K. lombokiana* の 2 種がインドネシア諸島に孤立して分布するものであるか，あるいは *Kunbir* 属自体も近縁の *Merionoeda* 属と同様に，東洋区からオーストラリア区までほぼ連続して広く分布するものであるかは，今後，この島嶼地域をより詳しく調査することによって明らかにされることだろう．

なお *ikuoi* という新名は，共同執筆者横井の実弟であって，本論文執筆中に死去した横井郁夫に献名されたものである．

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——— & ——— 2008. Two new *Merionoeda* (Coleoptera, Cerambycidae) from the Islands of Seram and Biak, Indonesia. *Ibid.*, **14**: 59–66.

Elytra, Tokyo, **36**(2): 273–274, November 22, 2008

New Locality and Host Records of *Trirachys bilobulartus* (Coleoptera, Cerambycidae)

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Key words: Cerambycidae, *Trirachys bilobulartus*, *Rhizophora apiculata*, Vietnam.

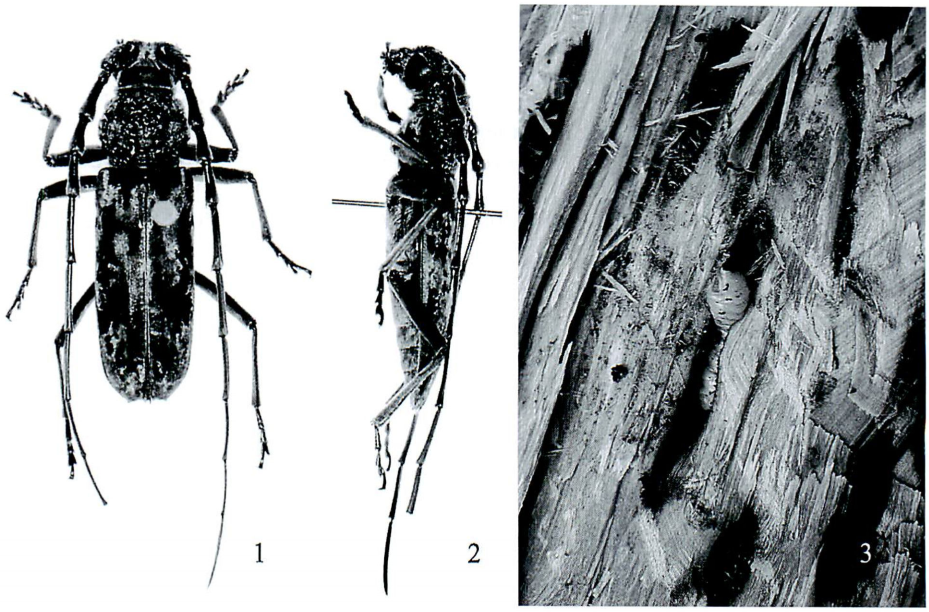
Trirachys bilobulartus was described by GRESSITT and RONDON (1970) from Pakkading (alt. 156 m), Borikhane Province, Khongxedong (alt. 122 m), Wapikhamthong Province and Salacems Island along the drainages of the Mekong River in Laos, and has never been recorded again. We have recently found this species in a mangrove forest in Vietnam, and report it here as a new locality. We also record its host plant for the first time.

Trirachys bilobulartus GRESSITT et RONDON, 1970

(Figs. 1–3)

Trirachys bilobulartus GRESSITT et RONDON, 1970, Pacif. Ins. Mon., **24**: 68, fig.13 f.

Specimens examined. 1 ♀, Mangrove forest in Can Gio, Ho Chi Ming, collected from a living *Rhizophora apiculata* BL. tree in VI–2007, P. Q. THU leg.; 1 ♀, same locality, three species and collector, emerged in XI–2007; 1 ♂, same data as the preceding but emerged in III–2008.



Figs. 1–3. *Trirachys bilobulartus* GRESSITT et RONDON. —— 1, Male habitus, dorsal view; 2, ditto, lateral view; 3, larva boring in a living trunk of *Rhizophora apiculata* BL.

Notes. The male specimen examined measures 26 mm in length, and is smaller than the specimens from the type series from Laos, which are 30–42 mm in length. This specimen likewise has shorter antennae that are 1.5 times as long as the body, instead of being more than twice as long as in the males of the type series. This is the first record for a longicorn beetle ever to be found in a live mangrov tree.

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Elytra, Tokyo, **36**(2): 275–278, November 22, 2008

A New Species of Colydiinae (Coleoptera, Zopheridae) from Tokunoshima Island, Southwestern Japan

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Abstract A new colydiine species of the genus *Synchita* is described from Tokunoshima Island under the name of *Synchita hirsuta*, which is distinguishable from the congeners by long elytral setae and pronotal disc with network of irregular ridges.

The genus *Synchita* is one of the largest genera in the subfamily Colydiinae. Most of the species have small body of rounded outline, no prominent projections nor ridges, often showing various color patterns on elytra. Nine species of the genus *Synchita* have hitherto been known from Japan. An additional species was found from Tokunoshima Island of the Ryukyu Archipelago and is described herewith as a new species.

Before going further, I wish to express my sincere thanks to Dr. Shun-Ichi Uéno, emeritus curator of the National Museum of Nature and Science, for his critical reading of the manuscript.

Synchita hirsuta sp. nov.

(Figs. 1–8)

Body length: 2.15–2.20 mm.

Color: — Head, antennae and legs reddish brown; pronotum blackish or reddish brown; elytra blackish brown; body setae white.

Head wholly covered with irregular network, bearing fine, short bristles and longer setae with irregular margins. Interfacetal setae of eyes fine and minute. Antennae (Fig. 2) 10-segmented; antennomere 3 longer than 4–6; antennomeres 7–9 gradually increasing in size (both in length and width), connecting to large, rounded club; club densely covered with short setae and fewer numbers of longer setae, except in basal one-third lacking in setae and showing vague pattern of network.

Prothorax becoming slightly wider posteriorly; anterior angles not or only barely produced; pronotal sides nearly straight, crenulate, each side provided with 12 denticles, each bearing an expanded seta with serrate margin (Fig. 3); disc appearing to have granular surface structure, but actually providing with network of irregular ridges and two types of setae: short simple bristles (Fig. 8 A) and expanded setae with serrate margin (Fig. 8 B).

Elytra 1.6× as long as wide, bearing nine rows of punctures; each puncture with central rectangular hole; a hole connected with succeeding hole by short longitudinal band (Fig. 5); two types of setae observed on elytra, minute, simple setae inserted on connecting bands and long, expanded setae with serrate margin situated between puncture rows alternately; the latter setae nearly as long as longitudinal distance between their insertion pores.

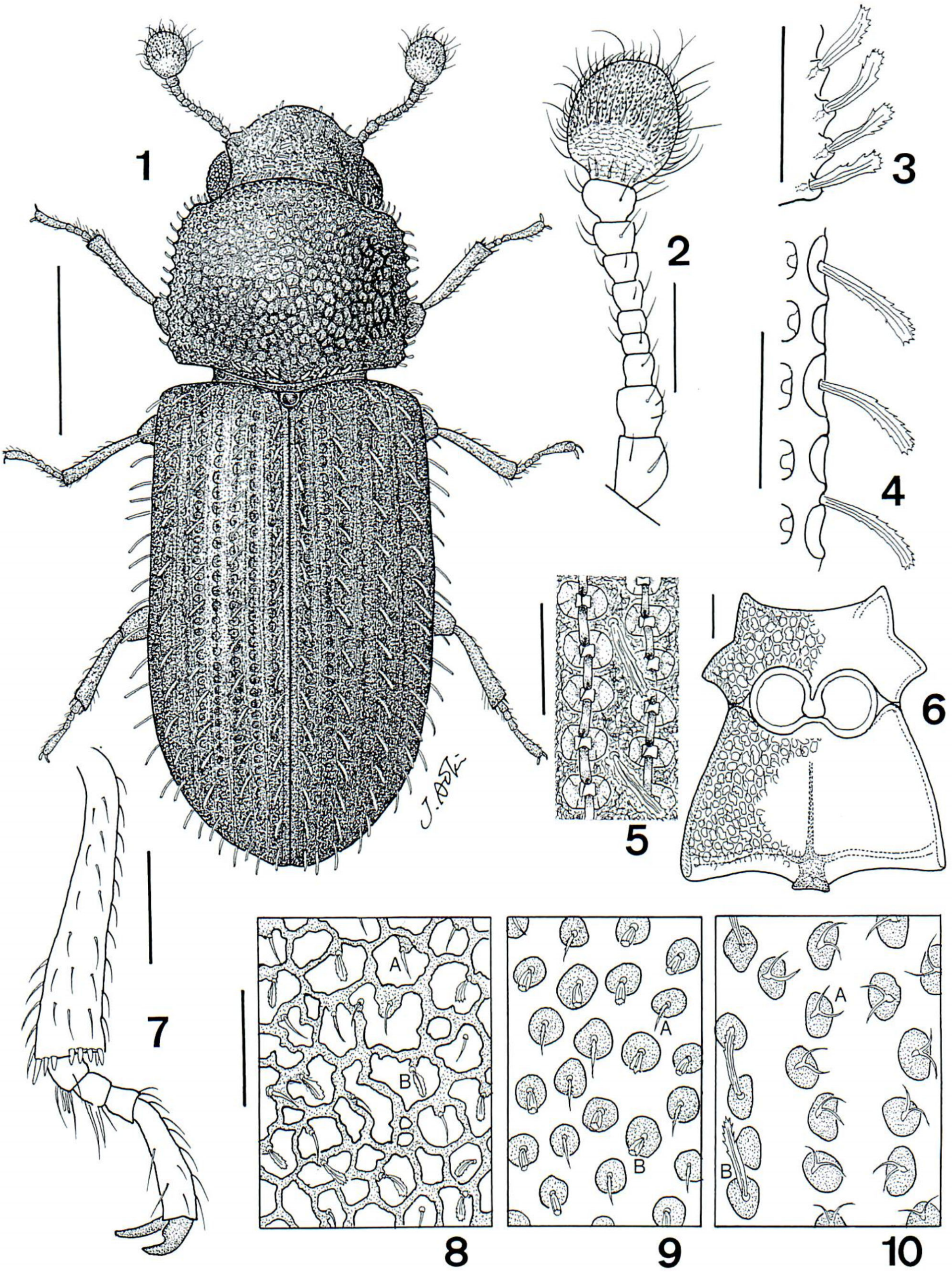
Pro-, meso- and metasterna as well as ventrites 1–5 with irregular network and minute, simple bristles. On distal margin of tibiae 11–12 conical teeth tightly arranged.

Type series. Holotype ♀ and 2 paratypes: The foot of Mt. Amagi, Tokunoshima Island, S. Japan. 1–IX–2008. J. AOKI leg. Holotype (NSMT–I–C 200123) and 1 paratype (NSMT–I–C 200124) are deposited in the collection of the National Museum of Nature and Science, Tokyo.

Notes. Species of the genus *Synchita* often exhibit color pattern on the elytra. However, five Japanese species including the new species have black or blackish brown elytra without color pattern and are distinguishable from one another by the following key:

1. Pronotum becoming narrower posteriorly. ……………………………………………2
— Pronotum not becoming narrower posteriorly. ………………………………………3
2. Elytra long, about 3.4× as long as pronotum; lateral pronotal margins finely serrate; body length about 3.5 mm. ……………*S. angustissima* (NAKANE, 1968)
— Elytra not so long, about 2.5× as long as pronotum; lateral margins of pronotum with strong spines; body length 1.8–2.0 mm. ………*S. bonina* (NAKANE, 1991)
3. Elytral setae long, each almost reaching insertion of succeeding seta; pronotal disc with irregular network; teeth arranged on distal margin of tibiae blunt at tip; body length 2.15–2.20 mm. …………………………………*S. hirsuta* sp. nov.
— Elytral setae short, never reaching insertion of succeeding seta; pronotal disc with granules (Figs. 9 and 10); teeth arranged on distal margin of tibiae pointed at tip. ……………………………………………………………………………………4
4. Pronotal and elytral setae never bifid; antennomeres 7–9 gradually increasing in size; pronotal disc with granules densely arranged (Fig. 9). Body length 2.00–2.70 mm. ……………………………………………*S. hayashii* (SASAJI, 1971)
— Pronotal and elytral setae bifid in part; antennomeres 7–9 equal in size to one another; pronotal disc with granules sparsely arranged (Fig. 10). Body length 1.85–2.20 mm. ……………………………………*S. tokarensis* (NAKANE, 1967)

Among the Austro-Pacific species of *Synchita*, *S. australis* CATER et ZECK, 1937 is most similar to the new species, but is distinguishable from the new species by shorter elytral setae and longer elytra (elytra/pronotum in length=2.82 in *australis*, 2.30 in *hirsuta*).



Figs. 1–10. —— 1–8, *Synchita hirsuta* sp. nov.; 9, *Synchita hayashii* (SASAJI); 10, *Synchita tokarensis* (NAKANE). —— 1, Dorsal side; 2, antenna; 3, a part of lateral marginal setae on pronotum; 4, a part of elytral setae; 5, surface sculpture and two types of setae on elytron; 6, pterosternum; 7, foreleg; 8–10, surface structures of pronotal disc (8, *S. hirsuta*; 9, *S. hayashii*; 10, *S. tokarensis*) [1, holotype; 2–8, paratype]. (Scale: 0.5 mm for 1; 0.1 mm for 2–10.)

要　約

青木淳一：徳之島から発見されたホソカタムシの1新種（甲虫目コブゴミムシダマシ科）．——日本産ヒメヒラタホソカタムシ属 *Synchita* には9種が知られているが，今回，鹿児島県の徳之島から10種目の新種が見出され，ケブカヒメヒラタホソカタムシ（新称）***Synchita hirsuta*** sp. nov. と命名し，記載した．日本産既知9種のうち，ハヤシヒメヒラタホソカタムシ *S. hayashii* (SASAJI, 1971)，クロヒメヒラタホソカタムシ *S. tokarensis* (NAKANE, 1967) および本新種の3種は上翅に斑紋がないこと，前胸背板が後方に向かって狭まらずに，やや幅広くなることにおいてよく似ているが，本新種では前胸背板の表面構造が顆粒状ではなく網目状であり，上翅の毛がはるかに長い点で他の2近似種と区別される．

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Elytra, Tokyo, **36**(2): 279–285, November 22, 2008

Description of the Larva of *Anchycteis brunneicornis* (Coleoptera, Ptilodactylidae, Anchytarsinae), with Key to Genera of Aquatic Larva of Japanese Ptilodactylidae

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Abstract Undetermined larvae of Ptilodactylidae are commonly found from mountain streams in Tôhoku District, northern Japan. The larvae are assigned to *Anchycteis brunneicornis* (LEWIS) by laboratory rearing. Larval morphology is described based on laboratory-reared and field-collected specimens.

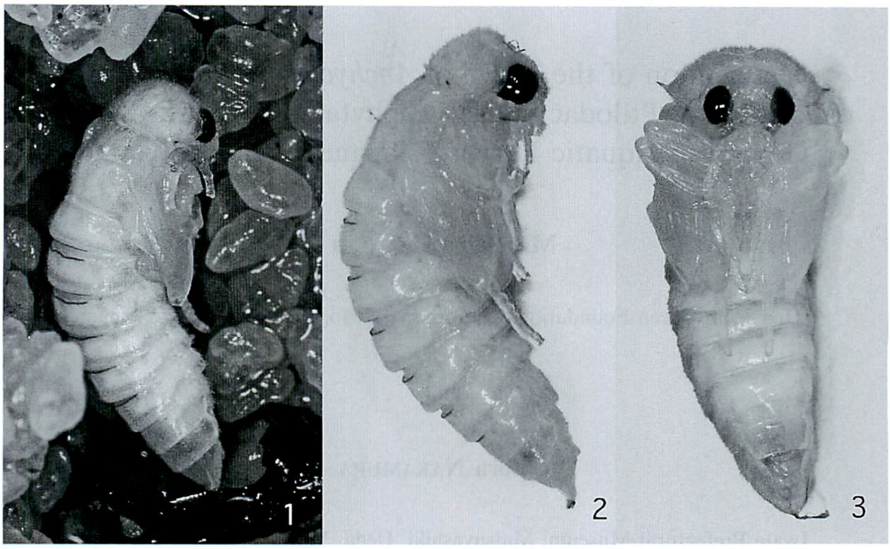
The genus *Anchycteis* HORN includes three species in Japan: *A. brunneicornis* (LEWIS), *A. monticola* (NAKANE), and *A. miyatakei* (NAKANE) (SATÔ, 2006). However, their larval morphology has been unknown. Only a North American species, *A. velutina* HORN larva is illustrated by LAWRENCE (1991). In this study, we reared larvae of *A. brunneicornis* in the laboratory to describe their larval morphology.

We gratefully acknowledge our indebtedness to Dr. Hiroyuki YOSHITOMI for his help. We also acknowledge supply of samples to Dr. Jun NAKAJIMA.

Materials and Methods

Observation and description of external morphology.

Larvae were collected from Iwate and Yamagata Prefectures, Honshu, Japan. The specimens were stored in dry conditions, or fixed in 70 or 99% ethanol, and were deposited at the Hoshizaki Institute of Wildlife Protection, Izumo, Shimane Prefecture, Japan. External larval morphology was examined and photographed under a stereoscopic microscope or a light microscope. Terminology for morphological features of larvae followed SPANGLER (1983) and LEE *et al.* (2005).



Figs. 1–3. Pupa of *A. brunneicornis*. —— 1, Pupated in wet sands; 2, lateral view; 3, ventral view.

Rearing of larvae.

Larvae for rearing were collected from one localitiy, Matsu-kawa Riv., Yunomata-kôen, Matsuo, Hachimantai City, Iwate Prefecture, Japan, on 21 April 2008. Our rearing method followed the breeding system of Psephenidae by SATÔ (1972); larvae were kept in a small tank with shallow water, coarse sand, and gravel. Emerged adults were identified to species.

Results

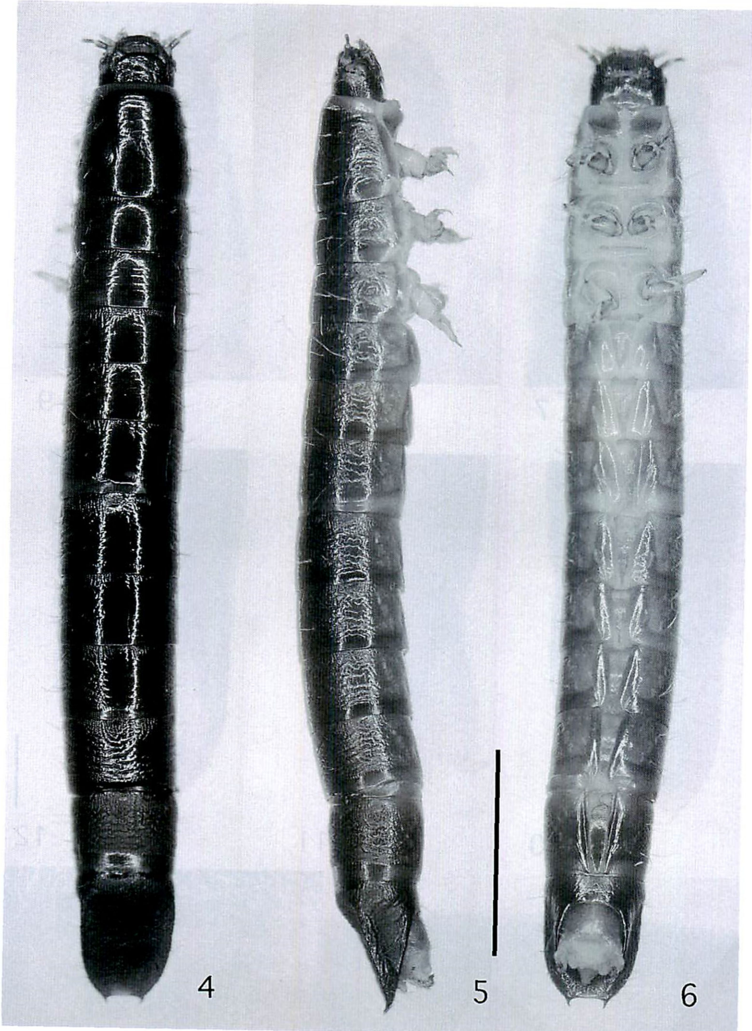
In the laboratory rearing, two *A. brunneicornis* adults emerged: one larva pupated on 10 June 2008 and emerged on 20 June 2008; another larva pupated on 11 June 2008 and emerged on 20 June 2008. These larvae pupated in the wet sands. The pupae are characterized by a pair of pronotal styli on posterolateral angle, cuticular setae, and gin-traps (Figs. 1–3).

Description of Larva

Anchycteis brunneicornis (LEWIS, 1895)

(Figs. 4–24)

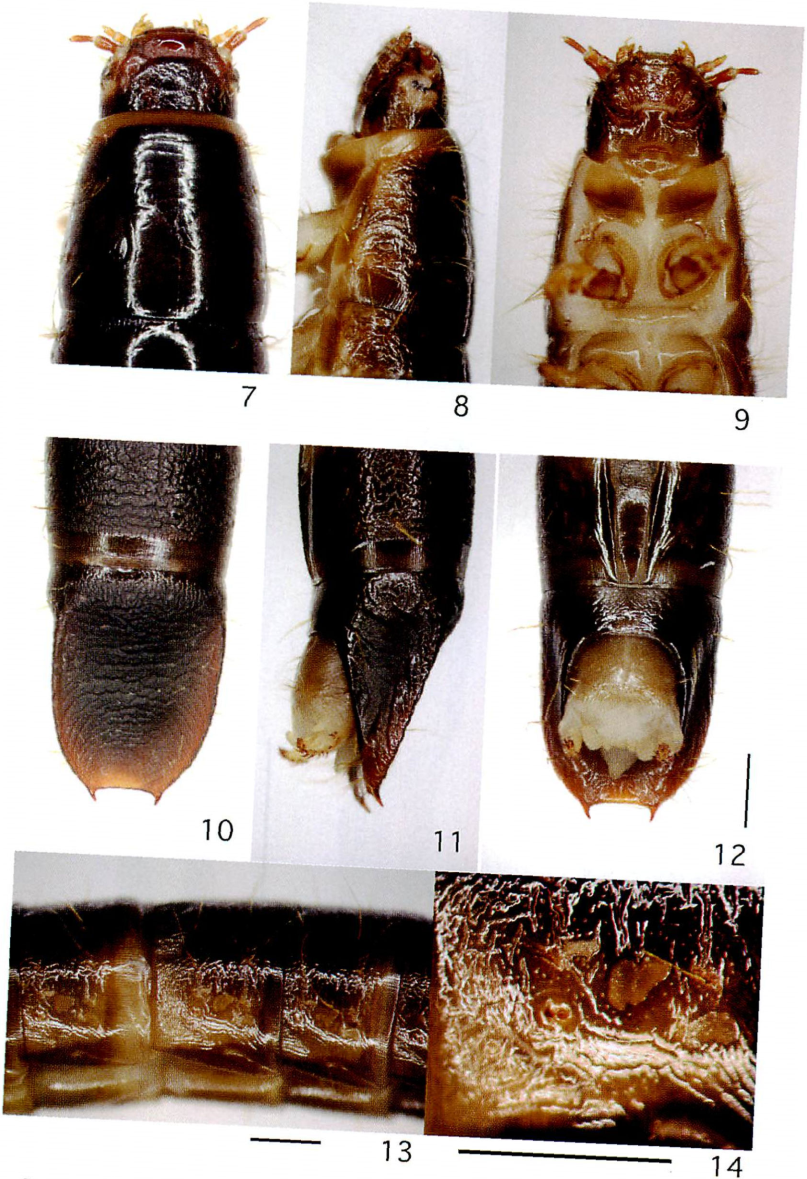
Body elongate and parallel-sided from dorsal view; most abdominal segments semicylindrical, moderately flattened ventrally; color, dark brown dorsally but gradually changing to light colored laterally, creamy yellow ventrally; dorsal and lateral surfaces



Figs. 4–6. Larva of *A. brunneicornis*. —— 4, Dorsal view; 5, lateral view; 6, vetral view. Scale bar = 5.0 mm.

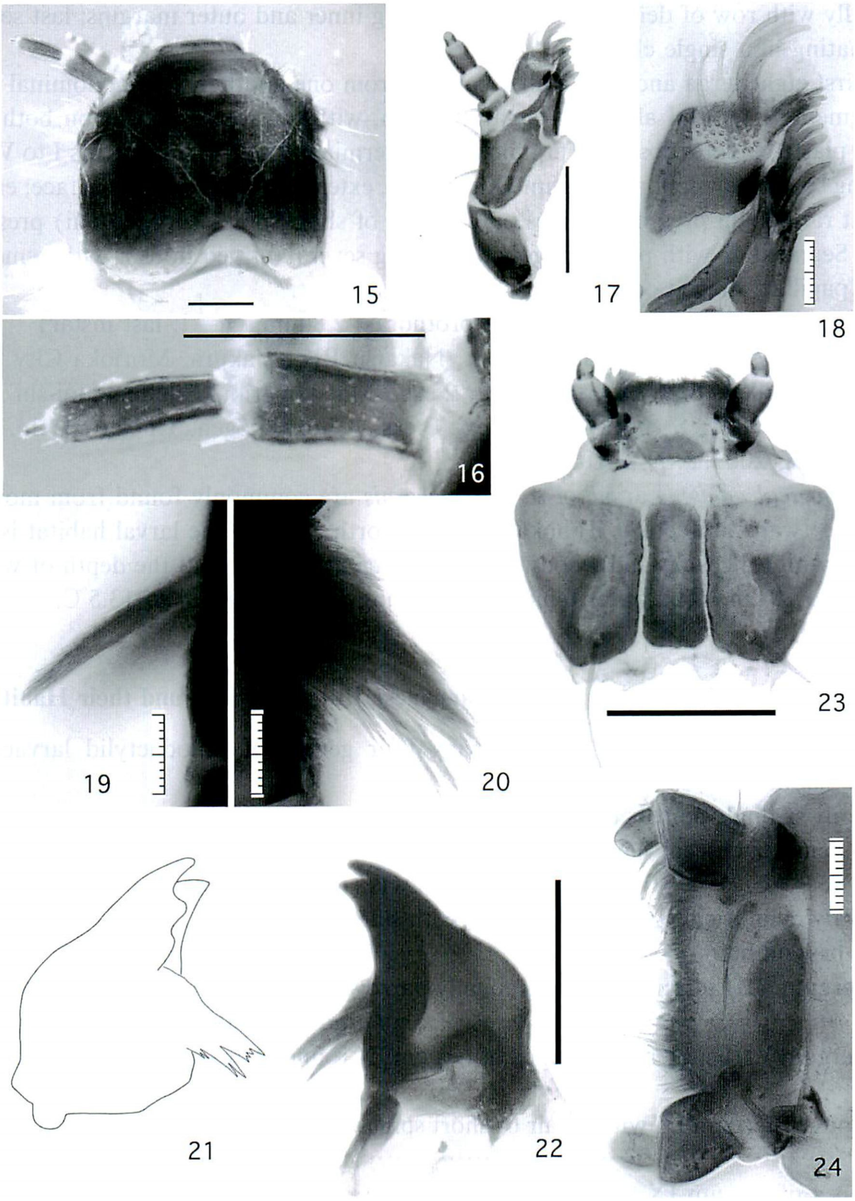
entirely smooth and shiny, but abdominal segments VII to IX more or less dull; sparsely setaceous without pubescent hairs.

Head visible from above; broader than length; frons and vertex irregularly punctate; posterior edge with abrupt median emargination; epicranial stem absent; frontal arms contiguous at base; frontoclypeal suture distinctly impressed. Anntena 3-segmented, 1st slightly longer than 2nd, 3rd evidently short; antennal length about 0.5 times as long as head width. Mandible tridentate at apex, bearing brushes and hairs in inner margin of ventral surface, with articulated pubescent process in inner-middle



Figs. 7–14. Larva of *A. brunneicornis*. —— 7–9, Head and prothorax; 10–12, abdominal segments VIII–X; 13, abdominal segments III–V; 14, spiracle on segment IV. 7, 10, Dorsal view; 9, 12, dorsal view; others, lateral view. Scale bars = 1.0 mm.

margin of dorsal surface. Maxilla with separate galea and lacinia; cardines well separated from one another; maxillae and labium separated. Labium with postmentum divided into three parts.



Figs. 15–24. Larva of *A. brunneicornis*.——15, Head, 16, antenna; 17–18, maxilla; 19–22, right mandible (19, articulated pubescent process; 20, brushes and hairs); 23–24, labium. Scale bars = 0.5 mm in 15–17, 21–23; 0.01 mm in others.

Thorax with dense setae on lateral sides; spiracles on sides of mesothorax. Prothorax about 1.5 times as long as mesothorax. Mesothorax as long as metathorax; similar to metathorax. Legs 4-segmented, short and stout; second and third segments ventrally with row of dense, robust, spines along inner and outer margins; last segment terminating in a single claw.

First eight terga and sterna all separated from one another; free abdominal sterna on segments I to VIII all about equal in width, with biforous spiracles on both sides; lateral plastron plates absent. Tergum VIII subterminal; similar to segments I to VII not forming spiracular siphon. Tergum IX terminal, extending onto ventral surface; entirely flat but raised rim present on sides only; a pair of short spines (urogomphi) present in apex. Segment X with paired pygopods bearing several curved hooks; with osmoregulatory papillae; hinged operculum and anal gills absent.

Body length: ca. 20 mm; width of prothorax: 2.8 mm. (n=1; last instar)

Larval specimens examined. 5 exs., Nakatsu Riv., Yakura, Morioka City, Iwate Pref., 7–IV–2008, S. NAKAMURA leg.; 2 exs., Matsuoyoriki, Hachimantai-shi, Iwate Pref., 21–IV–2008, S. NAKAMURA leg.; 3 exs., Chôkai-kôgen, Chôkai-machi, Akita Pref., 16–IX–2007, J. NAKAJIMA leg.

Ecological notes. Larvae of *A. brunneicornis* are commonly found from mountain region in Iwate Prefecture, Tôhoku District, North Japan. The larval habitat is small streams with leaf packs and woody debris of *Quercus crispula* and the depth of water is about 5 to 20 cm. The water temperature during June shows 9.4 to 13.5℃.

Key to Genera of Aquatic Larva of Japanese Ptilodactylidae and their Habitats

In Japan, we collected the following four genera of ptilodactylid larvae from aquatic habitats.

1a Body strongly convex dorsally, flattened ventrally; both sides of body with long and dense pubescent hairs··························*Drupeus* LEWIS (mountain stream; vertical wet rocks)
1b Body cylindrical or semicylindrical; both sides of body without long and dense pubescent hairs ··························2
2a Tergum VIII terminal. Apex gradually narrowed, forming spiracular siphon··························*Paralichas* WHITE (marsh; paddy field)
2b Tergum VIII subterminal. Apex of tergum IX rounded or truncate from above··························3
3a Apex of tergum IX with a pair of short spines (urogomphi)··························*Anchycteis* HORN (mountain stream)
3b Apex of tergum IX rounded without spines··························*Epilichas* WHITE (mountain stream)

要　約

林　成多・中村　学：エゾヒゲナガハナノミ *Anchycteis brunneicornis* (LEWIS, 1895)（甲虫目ナガハナノミ科）の幼虫記載および日本産ナガハナノミ科の水生幼虫の属までの検索. —— 東北地

方の河川上流部には，ナガハナノミ科の大型幼虫が生息しており，とりわけ岩手県では普通にみられるが，これまで成虫との対応関係は不明であった．2008年4月21日に岩手県八幡平市松尾で採集した終齢幼虫を室内で飼育した結果，エゾヒゲナガハナノミの成虫2頭が羽化した．本種の幼虫は，背面からみて腹部に9節が認められ，第9節背板の先端には尾突起があることから，同様な環境に生息する *Epilichas* 属とは容易に識別できる．これらの属も含め，国内では4属の幼虫が水生で湿地や源流，滝の壁面などに生息しており，属までの検索表を作成した．

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Elytra, *Tokyo*, **36**(2): 285–286, November 22, 2008

Calophagus pekinensis LESNE, 1902, a Bostrichid Beetle new to the Japanese Fauna

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French entomologist Pierre LESNE described a new genus based on a single species, *Calophagus pekinensis* in 1902. Five type-specimens were collected in the north of China, more specifically in the surroundings of Beijing (LESNE, 1902; BOROWSKI & WĘGRZYNOWICZ, 2007). The genus *Calophagus* belongs to the tribe Xyloperthini and subfamily Bostrichinae of the family

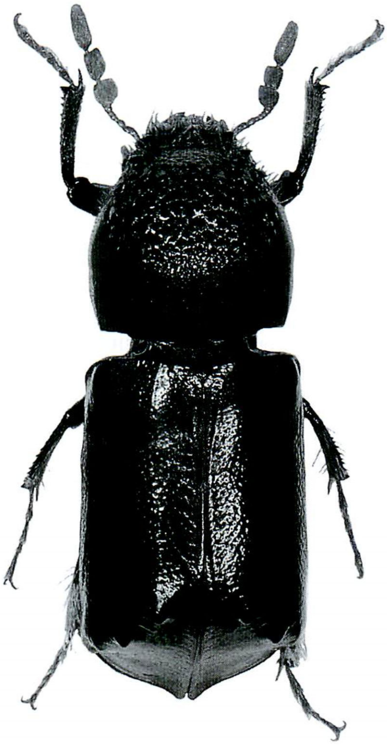

Fig. 1. *Calophagus pekinensis* LESNE, dorsal view.

Bostrichidae (BOROWSKI & WĘGRZYNOWICZ, 2007). Hitherto there was no information available concerning this species, except the original description and subsequent catalogues. Working on the collection of the Museum and Institute of Zoology, Polish Academy of Sciences in Warsaw, among the unidentified material of Witold EICHLER's collection we found *Calophagus pekinensis*. Single specimen of this species was collected on the Tsushima Islands (Nagasaki Prefecture) (labeled "Tsushima, Japan", "no 10066").

It is the first record for this species for more than 100 years and first record for the Japanese fauna. Taking into consideration the above mentioned data and the geographical distribution given by LESNE, it is possible to suppose that this species is also distributed in the Korean Peninsula.

We would like to thank our colleague Piotr ŚLIPIŃSKI for taking photo of the specimen of *Calophagus pekinensis*.

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Elytra, Tokyo, **36**(2): 287–289, November 22, 2008

Supplementary Notes on *Platycerus sue* IMURA, 2007 (Coleoptera, Lucanidae)

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Abstract Detailed locality of *Platycerus sue* IMURA, 2007 is given, with a brief comment on its distributional range, habitat, food and estimated annual life cycle.

Platycerus sue was described very recently by IMURA (2007) as a remarkable new species of the genus discovered in Japan for the first time in twenty years. The distributional range of this lucanid beetle is narrowly restricted to the high altitudinal area of a certain mountain range, and it is obvious that, if once exposed to an excessive hunting pressure, the new species will have a harmful effect. On the other hand, neither relevant laws nor measures for conservation of the wildlife are enacted in that area, though the greater part of the distributional range of the new species is located in a quasi-national park. Detailed locality of the new species was therefore tentatively masked at the time of original description to avoid disturbance caused by collectors or dealers aimed at this beetle. On March 24, 2008, the species was designated by the Minister of Environment as a species temporarily protected according to Article 5 of the Law for the Conservation of Endangered Species of Wild Fauna and Flora. The species will be protected provisionally for the next three years, and further field researches entrusted by the Ministry of Environment will be carried out in the meantime under the leadership of the Japanese Society of Coleopterology. Final decision on the way of protecting the species will be made after taking the result of these searches into account.

In this paper, I am going to give detailed collecting data of the type series of *P. sue*, with a brief comment on its distributional range and habitat as well as some bionomical notes obtained through my field works made from June to November, 2007. Their details will be presented at a joint meeting of the Japanese Society of Coleopterology, Japan Coleopterological Society and Japanese Society of Systematic Entomology to be held in Matsuyama on 22–23 November 2008.

Platycerus sue IMURA, 2007

Platycerus sue IMURA, 2007, Elytra, Tokyo, **35**, p. 492, figs. 1–3; originally designated type area: mountainous region of Japan. —— IMURA, 2008 a, Saikaku Tsûshin, Tokyo, (16), p. 51, fig. 5; 2008 b, Coleopterists' News, Tokyo, (162), pp. 17, figs. 1–3; 2008 c, Gekkan-Mushi, Tokyo, (450), p. 5, figs. 6, 10.

Detailed collecting data of the type series. Holotype: ♂, eastern shoulder of Mt.

Ishizuchi-san [石鎚山], 1,600–1,700 m in altitude, on the borders of Saijô-shi and Kumakôgen-chô in Ehime Prefecture, Southwest Japan, 4–VI–2007, Y. IMURA leg. Paratypes: 7♂♂, 1♀, same data as for the holotype; 7♂♂, 9♀♀, same locality, larvae collected in the field from June to July, 2007 and emerged in the laboratory in September, 2007.

Type depository. As was designated in the original description, the holotype is deposited in the collection of the Department of Zoology, National Museum of Nature and Science, Tokyo. Paratypes are now in the author's collection, but a part of them will be deposited in the following institutions after following prescribed procedure: 1) Hokkaido University Museum, Sapporo; 2) Department of Zoology, National Museum of Nature and Science, Tokyo; 3) Osaka Museum of Natural History; 4) Entomological Laboratory, Faculty of Agriculture, Ehime University; 5) Omogo Mountain Museum (Kumakôgen-chô in Ehime Prefecture); 6) Graduate School of Social and Cultural Studies, Kyushu University; 7) Museo di Storia Naturale della Università di Firenze; 8) Natural History Museum, London.

Distribution. High altitudinal area (from 1,520 m to 1,820 m in altitude, usually above 1,600 m) on the Ishizuchi Mountains (the Ishizuchi Mountain Range in a narrow sense and its northeastern continuation, the Hôsei Mountain Range) lying in the northern part of Shikoku, Southwest Japan. The westernmost locality hitherto known is Tengu-daké, the main peak of Mt. Ishizuchi-san. In the southern part of the distributional range, the species is recorded from Mt. Tebako-yama of Ino-chô in Kôchi Prefecture which may become the southern limit. The northeasternmost point known up to the present is the alpine area of Mt. Higashi-akaishi-yama.

Bionomical notes. The main habitat of the present species is deciduous broadleaved forests mainly composed of *Acer*, *Fagus*, *Fraxinus*, *Quercus*, *Lindera*, *Symplocos*, *Viburnum* and several kinds of azalea, etc., lying from the upper temperate to lower subarctic zones. In the lowermost part of its distributional range (1,500–1,600 m in altitude), the species often occurs sympatrically with *P. sugitai*, the latter of which is considered to be ranged from ca. 1,000 to 1,600 m in the Ishizuchi Mountains. General habit of *P. sue* is almost the same as in other members of the genus belonging to the group of *P. acuticollis*. Adult has its main activity peak for reproduction from late in the spring to early in the summer, corresponding to the end of May to the beginning of June in the alpine zone of the Ishizuchi Mountains. Adult male occasionally comes flying to young leaves of *Quercus crispula* or *Fraxinus* sp. The female starts ovipositing to the surface of food plant (rotten branch) usually from the beginning of June. Their larvae prefer to feed on brown- or softly rotten part of rather narrow branch lying on the forest floor. As is observed in other members of the genus distributed in East Asia, this species leaves a peculiar oviposition mark on the surface of its food plant. Preimaginal development takes one year and a few months at the shortest, or presumably two full years and several months in certain cases. From the end of September to the next spring, newly hatched adults in hibernation are found, together with the larvae, from the withered wood.

In closing this short article, I wish to express my cordial thanks to Mr. Shinji YANO of the Omogo Mountain Museum for his kind help in various ways. Thanks are also due to Dr. Shun-Ichi UÉNO of the National Museum of Nature and Science, Tokyo, for revising the manuscript of this paper.

要約

井村有希：タカネルリクワガタに関する補足知見．——タカネルリクワガタ *Platycerus sue* は20年ぶりに発見された邦産同属の新種として，2007年の秋に記載された．しかしながら，同種の生息範囲は特定の山塊の高所に限定されている可能性がきわめて高いうえ，同地域においては野生動物の捕獲に関する法的規制がとくに設けられておらず，採集者の殺到による個体数の減少が強く危惧されたため，原記載の時点では具体的な産地名の公表を敢えて控え，保全策の整備を待つという方針がとられた．本種はその後，環境省から種の保存法に基づく緊急指定種に指定されることになり，2008年3月24日づけで公示が行われ，法的規制下に置かれている．今後，最長3年間にわたる指定期間中に，より詳細な学術調査が行われ，本種の保全に対する最終的な方針がたてられる予定である．これを受けて本稿では，昨年の本学会において予告したとおり，本種の具体的な生息地をあきらかにし，あわせて分布域や生息環境，生態など，これまでに判明している知見の概要について述べた．本種は四国西部の石鎚山系（狭義の石鎚山塊と法星山脈）の高所のみに分布し，これまでに確認されている水平分布の西限は石鎚山天狗岳，南限は手箱山，北東限は東赤石山である．垂直分布は標高1,500 m強から1,800 m強に及ぶが，主たる生息域は1,600 m以上の地域である．また，垂直分布の下限にあたる標高1,500〜1,600 m近辺では，シコクルリクワガタ *P. sugitai* との混生が確認されている．おもな生息環境は温帯林帯上部から亜寒帯林帯下部に位置する落葉広葉樹林で，ブナ帯の上部にあるカエデ，トネリコ，ミズナラ，ツツジなどを主体とした疎林を好む．幼虫の食餌資源は広葉樹の細い接地材で，♀は材の裏面にルリクワガタ類特有の産卵マークをつける．成虫は5〜6月頃にミズナラやトネリコ類の新芽に飛来することがあり，卵から成虫の繁殖活動までに2ないし3年の期間を要するものと推測される．

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Elytra, *Tokyo*, **36**(2): 290, November 22, 2008

A New Record of *Oniticellus cinctus* (Coleoptera, Scarabaeidae) from Borneo

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We have been conducting researches on the dung beetle assemblages in East Kalimantan, Indonesia. In the course of our researches, we collected *Oniticellus cinctus* (FABRICIUS). This is the first record of this species from Borneo.

We herewith report the collection data. We referred to BALTHASAR (1963) for the known distribution of this species.

Oniticellus cinctus (FABRICIUS)

Scarabaeus cinctus FABRICIUS, 1775, Syst. Ent., 30.

Specimens examined. 1 ♂, 1 ♀, Sungai Wain, Balikpapan, Kalimantan Timur, Indonesia, 27–XII–2006, A. UEDA leg.; 1 ex., Karya Merdeka RT09, Samboja, Kutai Kartanegara, Kalimantan Timur, Indonesia, 18–XI–2007, M. ÔHARA leg.; 1 ex., Kanpon Timur, Balikpapan, Kalimantan Timur, Indonesia, 18–XI–2007, M. ÔHARA leg.

Distribution. South China, North India, Myanmar, Vietnam, Laos, Thailand, Malay Peninsula, Java, Borneo (new record).

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Contribution to the Knowledge of the Platycerine Fauna (Coleoptera, Lucanidae) of Central Sichuan, Southwest China

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Abstract A new species and a new subspecies of the lucanid genus *Platycerus* are described from the central part of Sichuan Province, Southwest China, under the names *P. xiongmao* and *P. turnai sichuanus*. New records of four other species from the same area are also given.

In the present paper, two new taxa of the genus *Platycerus* from central Sichuan of Southwest China are introduced into science. One of them is a new species belonging to the group of *P. bashanicus* and the other is a new subspecies of *P. turnai*, each will be described on later pages under the names of *P. xiongmao* and *P. t. sichuanus*, respectively. New records of four other species from the same area are also given, i.e., *P. consimilis*, *P. tieguanzi*, *P. cyanidraconis* and *P. hiurai*. All but a female of *P. hiurai* from Mt. Emei Shan were collected through my field researches routinely made in recent years in collaboration with the Academia Sinica.

Before entering into the text, I wish to express my sincere thanks to Mr. FAN Ting (International Academic Exchange Center of the Academia Sinica, Chengdu) for his kind aid through my field works. Deep appreciation is due to Ms. WAN Xia (Department of Biology in Anhui University, Hefei) for kindly giving me an opportunity to examine the female specimen of *P. hiurai* deposited in the collection of the Chinese Academy of Sciences in Beijing. Also I thank Dr. Shun-Ichi UÉNO (National Museum of Nature and Science, Tokyo) for revising the manuscript of this paper.

1. *Platycerus xiongmao* IMURA, sp. nov.

(Figs. 1, 2, 4)

Male. Length (including mandibles): 9.7–10.2 mm. Body above greenish coppery with a faint reddish tinge on head, pronotum and basal parts of elytra, or coppery maroon with a faint greenish tinge along lateral margins of pronotum and elytra; venter black with a greenish metallic lustre except for abdominal sternites on which greenish lustre is much more reduced or absent; mandibles, palpi and antennae almost black or partly dark rufous, femora yellowish brown except for blackish proximal and distal ends;

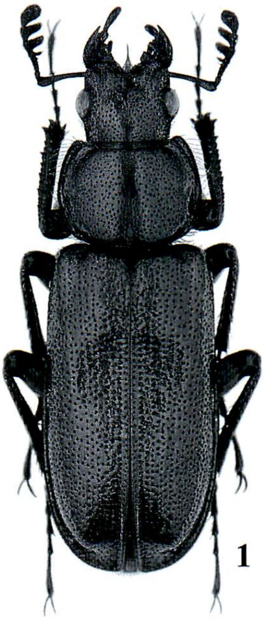
tibiae almost black, tarsi and claws dark brownish. Closely allied to *Platycerus bashanicus* described from the Daba Shan Mountains on the borders of southern Shaanxi and northern Chongqing (IMURA & TANIKADO, 1998, p. 93), but discriminated from that species in the following respects: 1) size a little smaller on an average; 2) dorsal coloration of male a little different, usually bearing red-brownish or coppery maroon tinge and never with a bluish lustre; 3) pronotum a little more transverse, 1.47–1.50 times as wide as long in male; 4) terminal plates of aedeagus smaller and shorter, more roundly arcuate in outer margin, much less remarkably wrinkled in apical portion, with the sclerotized keel on the plate nearly rectangularly set against the longitudinal median line of aedeagus; 5) a short membraneous protrusion at the centre of basal part of endophallus larger and longer; 6) flagellum less strongly developed, shorter, narrower and a little less remarkably pigmented. From the remaining three species belonging to the same group, the new species is discriminated at a glance mainly by differently shaped aedeagus and endophallus of male genital organ.

Female. Length (including mandibles): 9.7–11.0 mm. Body above dark coppery or coppery with a reddish tinge; venter and appendages almost as in male, though femora are more strongly dark reddish and abdominal sternites are brownish. Barely distinguished from *P. bashanicus* by having a little more coppery reddish dorsal coloration and differently featured front angles of pronotum which are a little more weakly protruded anteriad with the apex less sharply pointed. As regards the female, however, the difference is very small between the two species.

Type series. Holotype: ♂, below Liangshuijing〔凉水井〕(30°45′49″N / 102°43′35″E), 2,350–2,400 m in altitude, ca. 7 km north-northwest from Qiaoqi〔硗碛〕, in northern Baoxing Xian〔宝兴县〕, of Ya'an Shi〔雅安市〕, in central Sichuan, Southwest China, 16–IV–2008, Y. IMURA leg., to be deposited in the Department of Zoology, National Museum of Nature and Science, Tokyo. Paratypes: 1 ♂, 2 ♀♀, same data as for the holotype, in coll. Y. IMURA; 1 ♂, 1 ♀, same locality, larvae collected in the field on 16–IV–2008 and emerged in the laboratory in VII〜VIII–2008.

Notes. This is a second species belonging to the group of *P. bashanicus* occurring in the central part of Sichuan Province. Before this discovery, the only known representative of the same group occurring in the same area was *P. consimilis* described from Miyaluo in Li Xian which is about 100 km distant to the north from the type locality of the new species. It is worth noting that the endophallic structure of *P. xiongmao* is not similar to that of the Li Xian race but is much more closely allied to that of *P. bashanicus* whose main habitat is more than 700 km distant from the type locality

Figs. 1–7. Habitus and male genital organ of *Platycerus* spp. from China. —— 1, 2, 4, *Platycerus xiongmao* from Liangshuijing in Baoxing Xian, central Sichuan (1, ♂, holotype; 2, ♀, paratype); 3, *P. turnai sichuanus* from Xindianzi in Wenchuan Xian, central Sichuan; 5, *P. bashanicus* from Mt. Guangtou Shan in northern Chongqing; 6, *P. yeren* from Dashennongjia, western Hubei; 7, *P. consimilis* from Suoluo-gou in Li Xian, north-central Sichuan. —— 1–3, Habitus in dorsal view; 4–7, apical part of aedeagus with fully inflated endophallus in subventral view.



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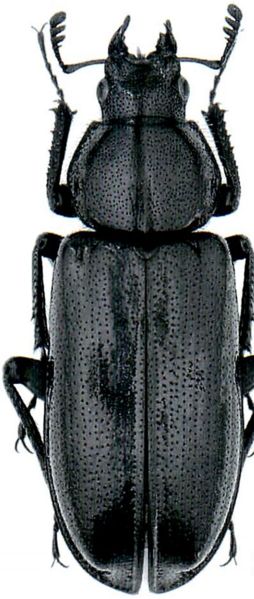

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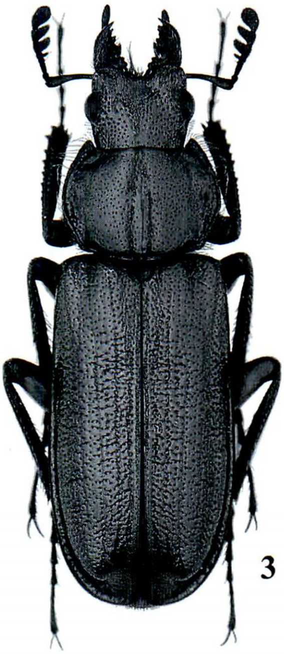

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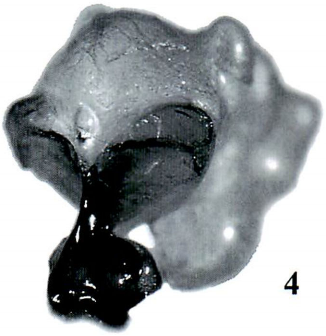

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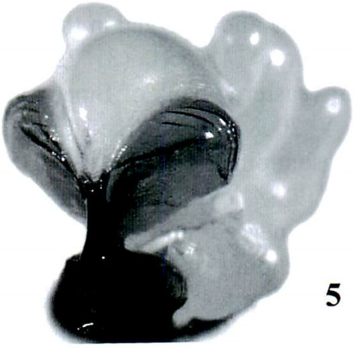

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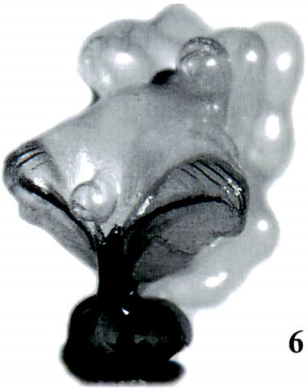

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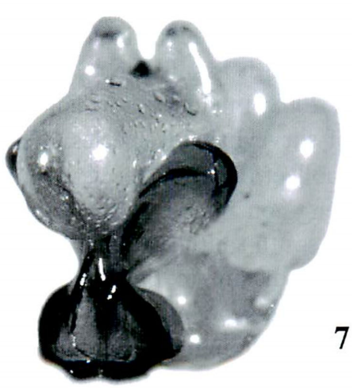

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of the new species as shown in Figs. 4, 5, 7 and 8. The collecting site of the new species lies in rather young deciduous broadleaved forest narrowly remaining on the right (eastern) bank of the upper reaches of the Dong He River. All the specimens were obtained from grey- to white rotten part of standing withered wood.

Etymology. The new specific name, *xiongmao*, means a Giant Panda (*Ailuropoda melanoleuca*) in Chinese, since the type locality of the new species, Baoxing Xian, is a historical place where this animal was discovered for the first time by a French missionary, Harman DAVID.

2. ***Platycerus consimilis*** TANIKADO et TABANA, 1998

(Fig. 7)

Platycerus consimilis TANIKADO et TABANA, 1998, Gekkan-Mushi, Tokyo, (333), p. 17, figs. 1 (on p. 13) & 3–8 (on p.14); type locality: Miyaluo, Li Xian, Sichuan.

Specimens examined. 1 ♀, lakeside hill of Lake Longwanghai 〔龙王海〕 (31°20′ 18–25″N / 102°57′ 17–20″E), 2,900–2,950 m in altitude, in Bipeng-gou 〔毕棚沟〕 Valley, in southern Li Xian 〔理县〕, 3–V–2008; 1♀ (broken specimen without head and prothorax), same locality, 5–V–2008; 6 ♂♂, 8 ♀♀, same locality, larvae collected in the field on 3 & 5–V–2008 and emerged in the laboratory in VII∼VIII–2008; 6 ♂♂, 5 ♀♀, below Jianzhuxia Gorge 〔箭竹峡〕, (31°22′ 12″N / 102°58′ 29″E), 2,600–2,650 m in altitude, on the right (eastern) bank of Bipeng-gou in Bipeng-gou Valley, larvae collected in the field on 5–V–2008 and emerged in the laboratory in VII∼VIII–2008; 9 ♂♂, 8 ♀♀, below Hongshanping 〔红杉坪〕 (31°21–22′ N / 102°51′ E), ca. 2,850 m in altitude, in Suoluo-gou 〔梭罗沟〕 Valley, in southern Li Xian, larvae collected in the field on 5∼6–V–2008 and emerged in the laboratory in VII∼VIII–2008; all from Aba Zangzu Qiangzu Zizhizhou 〔阿坝藏族羌族自治州〕 in north-central Sichuan, Southwest China, collected by Y. IMURA and preserved in coll. Y. IMURA.

Notes. This species was described by TANIKADO and TABANA (1998, p. 17) based on totally 50 specimens collected from "Miyaluo, Li Xian, Sichuan" (without further detailed data on the type locality). Since then, however, no contribution has been made to this species and it is still one of the least known *Platycerus* distributed in China. In the spring of 2008, I made a short collecting trip to Miyaluo and its nearby regions with the object of surveying this species. Though unable to find it from the type locality, I was able to collect the same species from three different stations near there as recorded above. Bipeng-gou is one of the tributaries of the Zagunao He River, about 40 km distant to the south-southeast from Miyaluo, and Suoluo-gou is another tributary which is about 12 km distant to the west from Bipeng-gou. The specimens from both the localities are almost identical with topotypical *consimilis* in both external and male genitalic features, though the examples from Bipeng-gou more frequently bear a coppery or greenish coppery tinge than those from Suoluo-gou. As shown in Fig. 7, the endophallus of *P. consimilis* exhibits a peculiar development at the basal portion which is the most noticeable diagnostic character of this species. The new collecting sites of *P. consimilis* lie in a deciduous broadleaved forest near the lake or stream, and most specimens were obtained from gray- to white rotten branch of cherry tree either protruded from the living trunk or already fallen down to the ground.

3. *Platycerus tieguanzi* IMURA, 2007

Platycerus tieguanzi IMURA, 2007, Elytra, Tokyo, **35**, p. 319; type locality: Leidongping, 2,430 m in altitude, on the northern slope of Mt. Emei Shan, of central Sichuan, Southwest China.

Specimens examined. 1♂, 2♀♀, Xilingxue Shan［西岭雪山］, 2,100–2,200 m in altitude, in western Dayi Xian［大邑县］, in Chengdu Shi［成都市］, 10–XI–2006; 3♂♂, 2♀♀, same locality, larvae collected in the field on 10–XI–2006 and emerged in the laboratory in VII～VIII–2008; 7♂♂, 6♀♀, above Xindianzi［新店子］(30°54′58″N / 103°02′16″E), 2,400–2,500 m in altitude, on the right (southern) bank of Riv. Shaotang He［烧汤河］, in southwestern Wenchuan Xian［汶川县］, of Aba Zangzu Qiangzu Zizhizhou, 12～13–IV–2008; 5♂♂, 3♀♀, same locality, larvae collected in the field on 12～13–IV–2008 and emerged in the laboratory in VII～VIII–2008; 3♂♂ (one perfect specimen and two dead broken ones), eastern side of Mt. Erlang Shan［二郎山］(N 29°53′03″ / E 102°17′42″), 2,350–2,400 m in altitude, near the southwestern corner of Tianquan Xian［天全县］, in Ya'an Shi［雅安市］, 18–IV–2008; 1♂, same locality, larvae collected in the field on 18–IV–2008 and emerged in the laboratory in VII～VIII–2008; all from central to north-central Sichuan, Southwest China, collected by Y. IMURA and preserved in coll. Y. IMURA.

Notes. This species was described very recently by myself from Mt. Emei Shan of central Sichuan (IMURA, 2007, p. 319). During my field researches made in the autumn of 2006 and spring of 2008, I was able to collect the same species from three different stations as recorded above. On Mt. Xilingxue Shan, *P. tieguanzi* is sympatric with *P. hiurai tanikadoi*. In Xindianzi of Wenchuan Xian, it is sympatric with both *P. hiurai* and *P. turnai sichuanus*. On Mt. Erlang Shan, any other species was found from the same collecting site, though another remarkable species, named *P. ladyae* (IMURA, 2005 b, p. 507), inhabits the lower altitudinal area of the same mountain range.

4. *Platycerus cyanidraconis* IMURA, 2008

Platycerus cyanidraconis IMURA, 2008, Elytra, Tokyo, **36**, p. 122, figs. 10–12; type locality: Qinlongping, 2,700–2,800 m in altitude, ca. 5.2 km south of Nanxin, on the western slope of Mt. Jiuding Shan, on the Chaping Shan Mts., in Mao Xian of north-central Sichuan, Southwest China.

Specimens examined. 4♂♂, above Miyaluo［米亚罗］(31°39′48″N / 102°47′17″E), ca. 2,700 m in altitude, on the right (southwestern) bank of Riv. Raisu He［来苏河］, in northwestern Li Xian, of Aba Zangzu Qiangzu Zizhizhou, in north-central Sichuan, Southwest China, 4–V–2008; 5♂♂, 3♀♀, same locality, larvae collected in the field on 4–V–2008 and emerged in the laboratory in VII～VIII–2008; all collected by Y. IMURA and preserved in coll. Y. Imura.

Notes. This species was described also very recently from the western side of Mt. Jiuding Shan on the Chaping Shan Mountains (Imura, 2008, p. 122). During my collecting trip to Miyaluo made in the spring of 2008 for the main purpose of rediscovering *P. consimilis*, I was unable to find the aimed species but succeeded in collecting another one instead. A close examination revealed that the species in question obtained near the village of Miyaluo well agrees with *P. cyanidraconis* in both external and male genitalic features, and we now know that the distributional range of this species is not restricted to Jiuding Shan but extends more widely over the mountainous region of Li Xian, though the two ranges are divided by a large depression formed by the Minjiang River. All the specimens collected in the field were hibernating in white- or gray-rotten part of withered wood, determined most probably as *Carpinus* sp.

5. *Platycerus hiurai* Tanikado et Tabana, 1997

Platycerus hiurai Tanikado et Tabana, 1997, Gekkan-Mushi, Tokyo, (316), p. 7, figs. 1–b & 3 (on p. 5), figs. 9–12 (on p. 2); type locality: West of Datengding [sic] (misspelling of Dafengding 〔大风顶〕), Weiheiluo 〔维黑洛〕 (or Weiheluo 〔威核洛〕), Yiguojue Xiang, Meigu Xian, Sichuan.

Specimens examined. 1 ♂, Leidongping 〔雷洞坪〕, 2,430 m in altitude, on the northern slope of Mt. Emei Shan 〔峨眉山〕, in western Emeishan Shi 〔峨眉山市〕, in central Leshan Shi 〔乐山市〕, 8–XI–2006; 1♀, “四川峨嵋山洗象池 (Sichuan, Emei Shan, Xixiangchi) / 1800–2000 公尺 (gongchi＝meter) / 中國科学院 (Chinese Academy of Sciences)” // “193(?)7. V. 25 / 採集者: 黄克仁 (collected by Huang Ke-Ren)” // “*Platycerus / delicatulus* / Lewis / 鉴定者: 马文珍 (determined by Ma Wen-Zhen)”, preserved in the collection of the Chinese Academy of Sciences in Beijing; 1 ♂, above Xindianzi (31°54′58″N / 103°02′16″E), 2,400–2,500 m in altitude, on the right (southern) bank of Riv. Shaotang He, in southwestern Wenchuan Xian, of Aba Zangzu Qiangzu Zizhizhou, 12–IV–2008; 2 ♂♂, 1 ♀, Mofang-gou 〔磨房沟〕 (30°10′54″N / 102°29′08″E), in the upper part of Riv. Lengshui He 〔冷水河〕, ca. 2,350 m in altitude, in Laba He Nature Reserve 〔喇叭河自然保护区〕, in northwestern Tianquan Xian 〔天全县〕, in Ya'an Shi 〔雅安市〕, 15–IV–2008; 1 ♀, Pori-gou 〔波日沟〕 (30°51′40″N / 102°43′12″E), in the uppermost part of Riv. Dong He 〔东河〕, 2,950–3,000 m in altitude, on the southern slope of the Jiajin Shan 〔夹金山〕 Mts., near the northern end of Baoxing Xian 〔宝兴县〕, in Ya'an Shi, 15–IV–2008; all from central to north-central Sichuan, Southwest China. All but the Xixiangchi specimen were collected by Y. Imura and preserved in coll. Y. Imura.

Notes. This species was described from Meigu Xian of southern Sichuan based on a pair of specimens, and later recorded from Mt. Xilingxue Shan of Dayi Xian in central Sichuan. The latter was described as a distinct subspecies, named *tanikadoi* (Imura, 2002, p. 20). Otherwise, however, nothing has been contributed to this species. In the past three years, I conducted extensive investigations for clarifying the platycerine fauna in the central part of Sichuan Province, and found out four new habitats of *P. hiurai* as

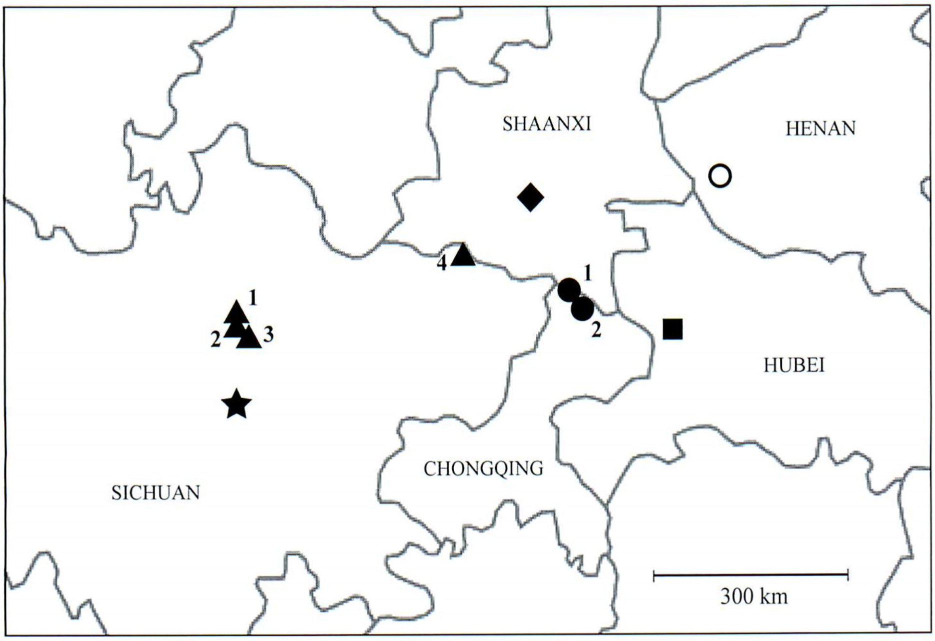

Fig. 8. Map showing the hitherto known localities of five species belonging to the group of *Platycerus bashanicus* in China. ● – *P. bashanicus* (1, Daba Shan Mts.; 2, Mt. Guangtou Shan). ○ – *P. bashanicus* ? (Fu'niu Shan Mts.). ■ – *P. yeren* (Dashennongjia). ◆ – *P. nagahatai* (Qinling Mts.). ▲ – *P. consimilis*: 1 – 3, subsp. *consimilis* (1, Miyaluo; 2, Suolou-gou; 3, Bipeng-gou); 4, subsp. *phagophilus* (Micang Shan Mts.). ★ – *P. xiongmao* (Baoxing Xian). "*Platycerus bashanicus*" from the Fu'niu Shan Mountains, first recorded as *P. businskyi*, is known so far only from one female specimen, and its true systematic position is still uncertain (IMURA, 2005 a, 2006 a, c).

recorded above. Since total number of the specimens now available for comparative study is still inadequate, I suspend judgment on the subspecific account for each population. Anyway, the distributional range of this species seems to extend more widely than has been expected, though the population density appears rather low at each station. The species occurs sympatrically with *P. tieguanzi* on Emei Shan, and with *P. tieguanzi* and *P. turnai sichuanus* in Xindianzi of Wenchuan Xian.

6. *Platycerus turnai sichuanus* IMURA, subsp. nov.

(Fig. 3)

Description. Length (including mandibles): ♂, 11.6–12.1 mm; ♀, 10.4–11.8 mm. Very closely allied to the nominotypical *turnai*, but distinguishable from it in the following points: 1) dorsal surface more strongly bears coppery tinge in female; 2) male mandibles shorter and smaller, less acutely hooked inwards near apices; 3) pronotal disc of male a little less strongly convex above; 4) front angles of male pronotum a little more remarkably protruded anteriad, with the tips more sharply pointed. Genital organ in both sexes almost as in the nominotypical subspecies.

Type series. 1 ♂, above Xindianzi (31° 54′ 58″ N / 103° 02′ 16″ E), 2,400–2,500 m in altitude, on the right (southern) bank of Riv. Shaotang He, in southwestern Wenchuan Xian, of Aba Zangzu Qiangzu Zizhizhou, in central Sichuan, Southwest China, 13–IV–2008, Y. IMURA leg., to be deposited in the Department of Zoology, National Museum of Nature and Science, Tokyo. Paratypes: 1♂, 1♀, same data as for the holotype; 1 ♀, same locality, larvae collected in the field on 13–IV–2008 and emerged in the laboratory in VII〜VIII–2008, in coll. Y. IMURA.

Notes. Before the discovery of the present new subspecies, we assumed that *P. turnai* (IMURA, 2001, p. 28) was the species endemic to Dashennongjia in western Hubei. It was therefore unexpected that the same species was discovered from the central part of Sichuan, which is more than 700 km distant to the west from the type locality. This discovery is important from the zoogeographical viewpoint, since it becomes the positive proof of a close faunal relationship between central Sichuan and western Hubei concerning a certain group of the genus *Platycerus*. Similar relationship was already suggested for a member of certain ground beetles. For example, a peculiar procrustimorphous carabid, *Aristocarabus*, is known from the mountainous region of central to northern Sichuan and the alpine zone of Dashennongjia, though unknown from the intermediate area. In Xindianzi of Wenchuan Xian, the present new subspecies was found, together with *P. tieguanzi* and *P. hiurai*, from deciduous broadleaved forest lying on the southern bank of the Shaotang He River. The new subspecies seems to prefer softly rotten branches lying on the forest floor as is observed in the nominotypical subspecies in Dashennongjia, while the other two species prefer white- or gray rotten cortex of withered wood either still standing or already fallen down.

要　約

井村有希: 中国四川省中部のルリクワガタ相に関する知見. —— 中国四川省中部の宝兴县から発見されたルリクワガタ属の一種を新種と認め，パンダルリクワガタ *P. xiongmao* という名を与えて記載した．本種はバサンルリクワガタ群に属するが，外部形態，♂交尾器形態にみられる特徴により既知の各種から識別される．また，同省中部の汶川县からトゥルナルリクワガタ *P. turnai* の新亜種 *sichuanus* を記載した．本種はこれまで，湖北省西部にある大神农架の特産種と思われていたため，四川盆地を介して700 km以上も西方に離れた汶川县から発見されたことは，生物地理学的にみてもきわめて興味深い．ほかに，ミヤマルリクワガタ *P. consimilis*, テツカンシルリクワガタ *P. tieguanzi*, セイリュウルリクワガタ *P. cyanidraconis*, ウラクロルリクワガタ *P. hiurai* の4種を，同省の中ないし中北部各地からあらたに記録した．

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Color Variation of *Metallidascillus wakaharai* (Coleoptera, Dascillidae)

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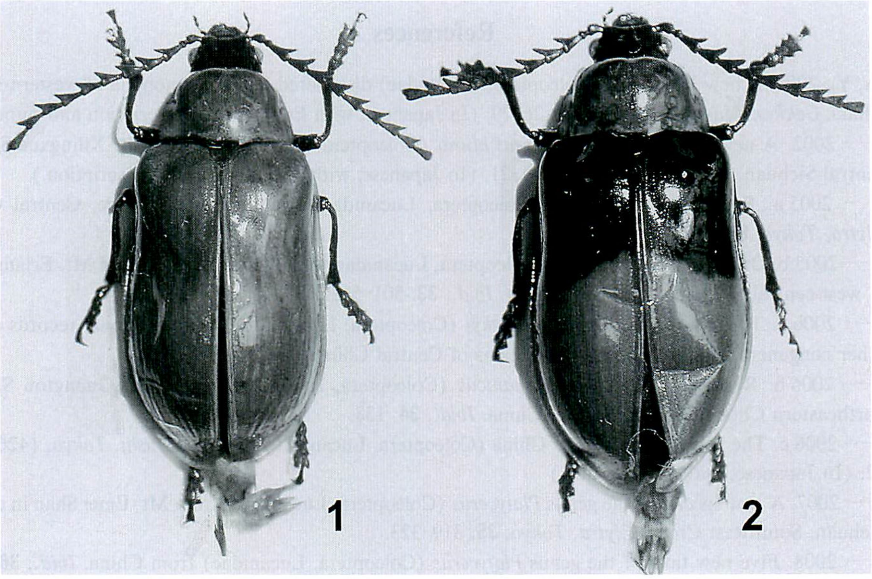
Metallidascillus wakaharai SATÔ has been recorded from Laos, Thailand and Vietnam (SATÔ,



Figs. 1–2. *Metallidascillus wakaharai*, ♂, habitus: 1, unicolored form; 2, bicolored form.

2003, 2005; SATÔ *et al.*, 2007). The type series and the additional specimens have all their elytra unicolored ("unicolored form" in this paper). Recently I had the opportunity to examine the "bicolored form" (BF) of this species collected from Central Laos. I thank Mr. Hiroyuki WAKAHARA, Dr. Nobuo OHBAYASHI, and Dr. Tatsuya NIISATO for their kindness in offering me invaluable specimens used in this study.

Specimens examined. 2 ♂♂, 4 ♀♀ (1 ♀ BF), Phou Samsoun, 2,000 m, Xiengkhouang Prov., C. Laos, 13–IV–2008, H. WAKAHARA leg.; 3 ♂♂ (1 ♂ BF), same locality and collector, 18–IV–2008 (figs. 1–2); 1 ♂, 4 ♀♀ (1 ♂ BF), Phou Tonmon, 1,950 m, Xiengkhouang Prov., C. Laos, 12–IV–2008, H. WAKAHARA leg.; 1 ♀, same locality and collector, 16–IV–2008.

Remarks. BF has the proximal third of elytra (including scutellum) black, but it agrees with the unicolored form by all other characters (including male genitalia).

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Phylogenetic Relationships of Aulacocyclinae (Coleoptera, Passalidae) Inferred from Morphological Characters

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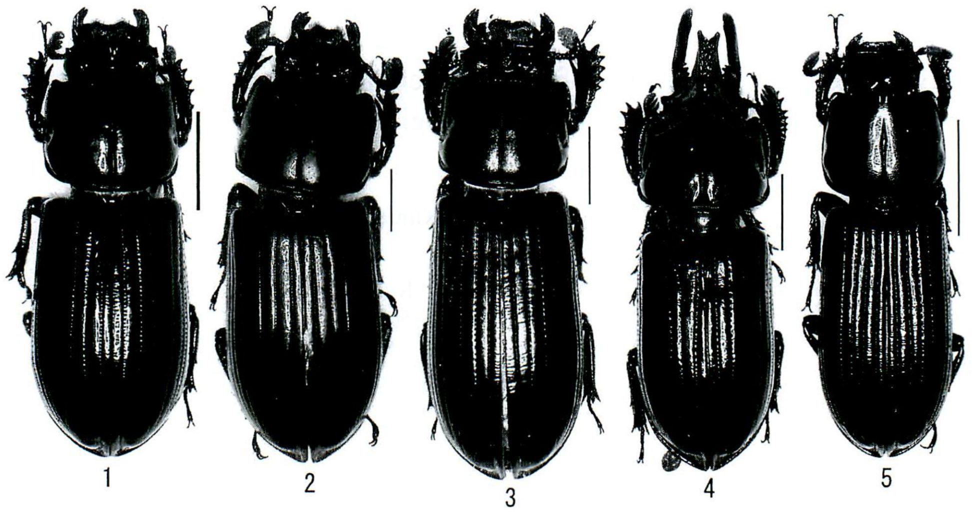
Abstract Phylogenetic relationships among the five genera of the passalid subfamily Aulacocyclinae, *Aulacocyclus, Ceracupes, Comacupes, Cylindrocaulus* and *Taeniocerus,* are analyzed by the maximum parsimony method using 35 morphological characters. Twenty species of Aulacocyclinae are included in the analysis, with five representative species from five tribes of the Passalinae used as outgroup. The resultant tree indicated monophyly of the subfamily Aulacocyclinae and that of the tribe Aulacocyclini consisting of *Aulacocyclus, Comacupes* and *Taeniocerus.* Congeneric species cluster on the same branch with a high bootstrap value for the genera *Cylindrocaulus, Ceracupes* and *Comacupes,* whereas species of the genera *Aulacocyclus* and *Taeniocerus* are not separated from each other and no well-defined cluster is recognized for them.

Introduction

The passalid subfamily Aulacocyclinae (Coleoptera, Passalidae) include nearly 50 species distributed in the Palaearctic, Oriental and Australian Regions (Hincks & Dibb, 1935, 1958; Okano, 1988; Boucher, 1998; Boucher & Reyes-Castillo, 1996, 1997). Boucher (2005) divided this subfamily into two tribes: Aulacocyclini consisting of *Aulacocyclus, Comacupes* and *Taeniocerus,* and Ceracupini consisting of *Ceracupes* and *Cylindrocaulus* (Figs. 1–5). Furthermore, Boucher (2005) studied the phylogenetic relationships among all seven tribes of Passalidae using Trogidae, Lucanidae and Chironidae as outgroups, and suggested monophyly for the family Passalidae, the subfamily Aulacocyclinae consisting of the tribes Aulacocyclini and Ceracupini, and the subfamily Passalinae consisting of the tribes Passalini, Proculini, Solenocyclini,



Figs. 1–5. Habitus of representative species of Aulacocyclinae. Scales, 5 mm. —— 1, *Aulacocyclus rouxi*; 2, *Comacupes basalis*; 3, *Taeniocerus bicanthatus*; 4, *Ceracupes arrowi*; 5, *Cylindrocaulus davidi*.

Leptaulacini and Macrolinini. However, the phylogenetic relationships among the genera and species of Aulacocyclinae have not yet been elucidated to date. We therefore estimate the phylogenetic relationships among all the five genera of the Aulacocyclinae using the maximum parsimony method based on morphological characters.

Materials and Methods

The phylogenetic relationships of 20 species belonging to all the five genera of the subfamily Aulacocyclinae were estimated by the maximum parsimony method. Five species of the subfamily Passalinae, each of which is a representative of the five tribes of this subfamily, were included in the analysis as outgroup. Species analyzed are listed in Table 1. We used 35 morphological characters to analyze the species in the present study.

The characters and character states, which were adopted from the terminology of GRAVELY (1914) for the external morphological characters, that of REYES-CASTILLO (1970) for the wing vein, and that of LINDROTH (1957) for the male genitalia, were as follows:

Head

1. Upper surface of head: (0) punctate; (1) impunctate.
2. Outer tubercle: (0) present; (1) absent.
3. Inner tubercle: (0) present; (1) absent.
4. Central tubercle: (0) moderately developed, not overhanging; (1) absent; (2)

Table 1. List of the species studied for the analysis.

Species	Collection locality and date
Subfamily Aulacocyclinae	
Tribe Aulacocyclini	
Aulacocyclus perlatus KAUP	Oro, Papua New Guinea, 5–II–1995
A. rouxi HELLER	Reviere Blueu, New Caledonia, 27–XII–1997
A. tricuspis KAUP	Mont Koghis, New Caledonia, 25–XII–1997
Comacupes basalis (SMITH)	Mt. Apo, Mindanao, 15–I–1984
Co. cavicornis (KAUP)	Penag, Malay Peninsula, 17–XII–1992
Co. cylindraceus (PERTY)*	Trus Madi, Sabah, 25–IV–1992
Co. foveicollis KUWERT	Trus Madi, Sabah, 20–IV–1999
Co. masoni STLICZKA	Kota Tinggi, Malay Peninsula, 21–III–1996
Co. stoliczkae GRAVELY	Brumas, Sabah, 24–VIII–1985
Taeniocerus bicanthatus (PERCHERON)*	Bareo, Sarawak, 11–I–1990
T. mourzinei BOUCHER	Putao, Myanmar, 20–VI–1998
T. platypus KAUP	Trus Madi, Sabah, 25–IV–1992
T. pygmaeus (KAUP)	Langkawi, Malay Peninsula, 24–VIII–2003
Tribe Ceracupini	
Ceracupes arrowi HELLER	Nanshanchi, Formosa, 23–VIII–1986
Ce. chingkini OKANO	Chiang Rai, Thailand, 6–VIII–1987
Ce. fronticornis (WESTWOOD)*	Chiang Mai, Thailand, 31–XII–1992
Ce. yui OKANO	Wushe, Formosa, IV–1964
Cylindrocaulus bucerus FAIRMAIRE*	Sichuan, China, 9–VI–1997
Cy. davidi BOUCHER et REYES-CATILLO	Dalianshan, Sichuan, China, 14–V–1996
Cy. patalis (LEWIS)	Ishizuchi, Ehime, Japan, 28–VII–1997
Subfamily Passalinae	
Tribe Solenocyclini	
Pentalobus palinii (PERCHERON)	San Pedro, Ivory Coast, VIII–2000
Tribe Leptaulacini	
Leptaulax dentatus (FABRICIUS)*	Phu Pan, Laos, 3–III–2003
Tribe Macrolinini	
Macrolinus latipennis (PERCHERON)*	Tapah, Malay Peninsula, 24–III–1997
Tribe Proculini	
Proculus mniszechi KAUP	Purulha, Guatemala, 14–IX–2001
Tribe Passalini	
Passalus punctiger St. FARGEAU et SERVILLE	San Marcos, Guatemala, 26–IX–2001

*: The type species of the genus.

developed, overhanging in the anterior portion; (3) extremely produced forwards.
5. Frontal ridge: (0) present; (1) absent.
6. Supraorbital tubercle: (0) absent; (1) present.
7. Supraoccipital ridge: (0) present; (1) absent.
8. Upper tooth of mandible: (0) moderately developed; (1) absent; (2) extremely produced forwards and upwards.
9. Middle lower tooth of mandible: (0) mobile; (1) immobile.
10. No. of pubescent antennal lamellae: (0) 4 or more; (1) 3.
11. Concave hairless area on the anterior margin of labrum: (0) absent; (1) present.
12. No. of lacinial spines: (0) single; (1) double.
13. Distal lacinial spine: (0) not cleft; (1) cleft.
14. Scars on mentum: (0) present; (1) absent.
15. Median ridge on mentum: (0) absent; (1) present.
16. Distinct pentagonal smooth area on the central portion of mentum: (0) absent; (1) present.

Thorax

17. Marginal groove of pronotum: (0) incomplete, absent on the anterior margin; (1) almost complete except at the middle of anterior margin.
18. Median sulcus of pronotum: (0) incomplete; (1) complete.
19. Tubercles on anterior margin of pronotum: (0) absent; (1) present.
20. Scars of pronotum (punctures): (0) punctate; (1) impunctate.
21. Scars of pronotum (hairs): (0) hairless; (1) hairy.
22. Procoxae: (0) not covering the middle portion of prosternum at all; (1) incompletely covering it; (2) completely covering it.
23. Scutellum: (0) punctate; (1) impunctate.
24. Scars on mesosternum: (0) present; (1) absent.
25. Mesosternum: (0) impunctate; (1) partially punctate; (2) entirely punctate.
26. Metasternum: (0) punctate; (1) impunctate.
27. Elytral dorsal striae: (0) impunctate; (1) finely punctate; (2) strongly punctate.
28. Elytral lateral striae: (0) strongly punctate; (1) finely punctate.
29. Elytral lateral interstriae: (0) impunctate and hairless; (1) punctate and hairy.
30. Wing vein $2A_2$ (one of the branches of the second anal vein) of hind wing: (0) absent; (1) present.
31. No. of teeth on the outer margin of mesotibia: (0) 0; (1) 1; (2) 2 or more.

Abdomen

32. No. of visible abdominal sternites: (0) 6; (1) 5.
33. Abdominal sternites: (0) impunctate; (1) punctate only in anterior sternites; (2) wholly punctate.

Table 2. Character state matrix for 20 species of Aulacocyclinae and 5 species of Passalinae. See text for coding.

Species	Characters																																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
Aulacocyclus perlatus	1	1	1	2	1	0	1	0	1	1	0	1	0	1	0	1	1	1	0	1	0	2	1	1	0	0	1	1	0	1	1	1	0	1	1
A. rouxi	1	1	1	2	1	0	1	0	1	1	0	1	0	1	0	1	1	1	0	0	0	2	0	0	0	0	1	0	0	1	1	1	0	1	1
A. tricuspis	1	1	1	2	1	0	1	0	1	1	0	1	0	1	0	1	1	1	0	0	0	2	1	1	1	0	2	0	0	1	1	1	0	1	1
Comacupes basalis	0	1	1	2	1	0	1	0	1	1	0	1	0	0	1	0	1	1	0	0	1	2	0	1	2	0	1	1	1	1	1	1	2	1	1
Co. cavicornis	0	1	1	2	1	0	1	0	1	1	0	1	0	0	1	0	1	1	0	1	0	2	0	1	2	0	1	1	1	1	1	1	2	1	1
Co. cylindraceus	0	1	1	2	1	0	1	0	1	1	0	1	0	0	1	0	1	1	0	1	0	2	0	1	2	0	1	1	0	1	1	1	1	1	1
Co. foveicollis	0	1	1	2	1	0	1	0	1	1	0	1	0	0	1	0	1	1	0	0	0	2	0	1	1	0	2	0	0	1	1	1	0	1	1
Co. masoni	0	1	1	2	1	0	1	0	1	1	0	1	1	0	1	0	1	1	0	1	0	2	0	1	2	0	1	1	1	1	1	1	1	1	1
Co. stoliczkae	0	1	1	2	1	0	1	0	1	1	0	1	0	0	1	0	1	1	0	1	0	2	0	1	2	0	1	0	1	1	1	1	2	1	1
Taeniocerus bicanthatus	0	1	1	0	1	0	1	0	1	1	0	1	0	1	0	1	1	1	0	0	0	2	0	1	1	0	2	0	0	1	1	1	0	1	1
T. mourzinei	1	1	1	0	1	0	1	0	1	1	0	1	0	1	0	1	1	1	0	0	0	2	1	1	0	0	1	0	0	1	1	1	0	1	1
T. platypus	1	1	1	0	1	0	1	0	1	1	0	1	0	1	0	1	1	1	0	0	0	2	1	1	0	1	1	0	0	1	1	1	0	1	1
T. pygmaeus	1	1	1	0	1	0	1	0	1	1	0	1	0	1	0	1	1	1	0	0	0	2	1	1	0	1	0	1	0	1	1	1	0	1	1
Ceracupes arrowi	1	1	1	3	1	0	1	2	0	1	1	1	1	1	0	0	1	1	0	0	0	2	1	1	1	0	2	0	0	1	2	1	0	1	1
Ce. chingkini	1	1	1	3	1	0	1	2	0	1	1	1	1	1	0	0	1	1	0	0	0	2	1	1	0	1	2	0	0	1	1	1	0	0	1
Ce. fronticornis	1	1	1	3	1	0	1	2	0	1	1	1	1	1	0	0	1	1	0	0	0	2	1	1	0	0	2	0	0	1	2	1	0	0	1
Ce. yui	1	1	1	3	1	0	1	2	0	1	1	1	1	1	0	0	1	1	0	0	0	2	0	1	1	0	2	0	0	1	2	1	0	0	1
Cylindrocaulus bucerus	1	1	1	1	1	1	1	1	0	1	0	1	0	1	0	0	1	1	1	1	0	1	0	1	1	1	1	1	0	—	2	1	0	0	1
Cy. davidi	1	1	1	1	1	1	1	1	0	1	0	1	0	1	0	0	1	1	1	1	0	1	0	1	1	1	1	1	0	1	2	1	0	0	1
Cy. patalis	1	1	1	1	1	1	1	1	0	1	0	1	1	1	0	0	1	1	1	1	0	1	0	1	1	1	2	0	0	—	2	1	0	0	1
Pentalobus palinii	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Leptaulax dentatus	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
Macrolinus latipennis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	0
Proculus mniszechi	1	1	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	1	0	1	0	0	0	1	1	0	1	1	0	—	2	0	0	0	1
Passalus punctiger	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	1	0	0	1	0

Male genitalia

34. Basal piece and parameres of male genitalia: (0) separated; (1) united.

Body

35. Body thickness divided by elytral width at the widest point: (0) less than 0.7; (1) 0.7 or more.

Eight of the above characters (2, 9, 10, 17, 22, 30, 32, 35) were also used by BOUCHER (2005).

The character state matrix is shown in Table 2. Character 30 was considered inapplicable for the three species, *Cylindrocaulus bucerus, Cy. patalis* and *Proculus mniszechi,* all of which have the hind wings atrophied. The character was coded as "—" for these species. All characters were equally weighted and set as unordered. Analysis was performed using the Branch and Bound algorithm of PAUP (version 4.0; SWOFFORD, 2002) to find the most parsimonious networks rooted with outgroup. The strict consensus tree was then obtained from the shortest trees, and the three indices, consistency index excluding uninformative characters, retention index and rescaled consistency index, were calculated for goodness-of-fit statistics. Bootstrap analysis with heuristic search was performed for the trees with 1,000 replicates.

Results and Discussion

There was no uninformative character among the 35 characters used in the present study. One thousand forty equally parsimonious trees (tree length=84, consistency index=0.524, retention index=0.791, rescaled consistency index=0.414) were detected and the strict consensus tree was obtained for these shortest trees (Fig. 6).

Monophyly of the subfamily Aulacocyclinae was supported by the present results with a bootstrap value of 80%. Species of Aulacocyclinae shared the following character states (which were not shared by the outgroup species): 1) the inner tubercles absent; 2) the supraoccipital ridge absent; 3) the marginal groove of the pronotum almost complete; 4) the abdomen with five visible sternites; 5) the hind wing with the vein $2A_2$ (except for *Cylindrocaulus patalis* and *Cy. bucerus* in which the hind wing is atrophied). Of these, the presence of the hind wing vein $2A_2$ was also indicated by BOUCHER (2005). Three major lineages were recognized in the subfamily Aulacocyclinae; the first one corresponded to the genus *Cylindrocaulus* (bootstrap value, 80%), the second to the genus *Ceracupes* (bootstrap value, 62%), and the third to the tribe Aulacocyclini consisting of the remaining three genera (bootstrap value, 56%). Further, in Aulacocyclini, species of the genus *Comacupes* formed a monophyletic group with a bootstrap value of 70%. However, monophyly of the tribe Ceracupini consisting of *Ceracupes* and *Cylindrocaulus* was not ascertained by the present analysis, the genera *Ceracupes* and *Cylindrocaulus* formed a monophyletic group only in 320 trees (30.8%) of the shortest 1,040 trees. In none of the shortest trees, species of *Aulacocyclus* or

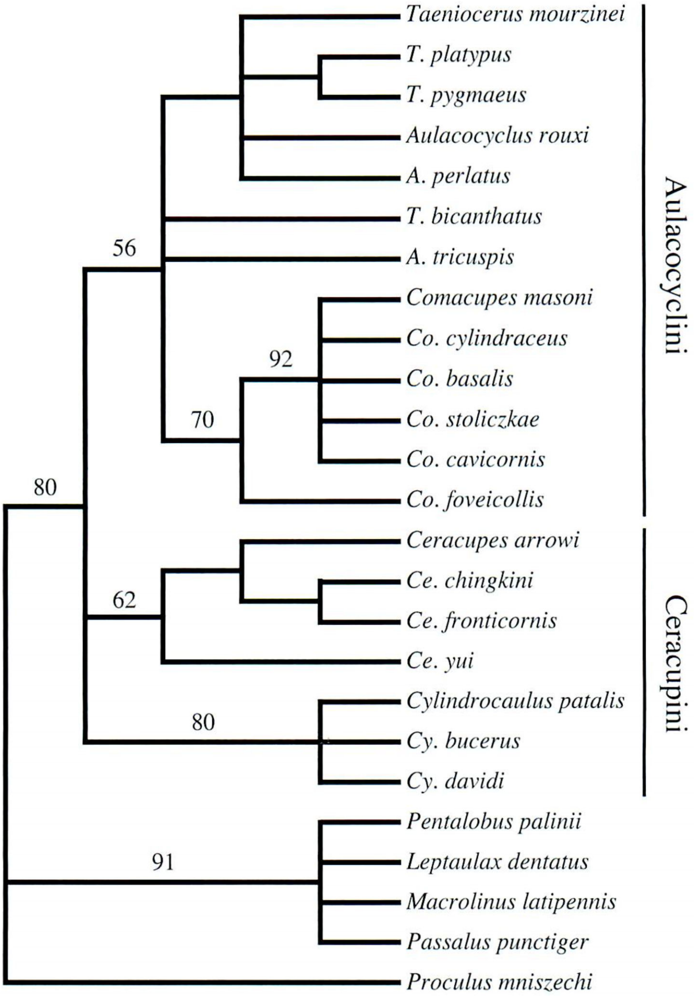


Fig. 6. Strict consensus tree of the shortest 1,040 trees. Bootstrap values (>50%; 1,000 replications) were shown above each branch.

Taeniocerus formed a monophyletic group. Species of the genera *Aulacocyclus* and *Taeniocerus* were not separated from each other, and no well-defined cluster was recognized among them.

The derived character states characterizing the species of each monophyletic genus were as follows: *Cylindrocaulus,* 1) the upper tooth of mandible absent, 2) the head with supraorbital tubercles, 3) the pronotum with tubercles on the anterior margin, 4) the procoxae incompletely covering the middle portion of prosternum; *Ceracupes,* 1) the upper tooth of mandible extremely produced, 2) the labrum with a concave hairless area on the distal end; *Comacupes,* 1) the mentum with a median ridge. Further, the species of the tribe Aulacocyclini share the character state, the middle lower tooth immobile, whereas both the species of the genera *Cylindrocaulus* and *Ceracupes* and the outgroup species of Passalinae have the middle lower tooth mobile.

In the present study, almost all known Aulacocyclinae species belonging to the Palaearctic or Oriental genera *Cylindrocaulus, Ceracupes, Comacupes* and *Taeniocerus* were examined (though we were not able to examine *Comacupes intermedius* HINCKS and *Taeniocerus bicuspis* (KAUP)), whereas only three species of *Aulacocyclus* were examined though this genus includes 20 or more known species mainly from the Australian Region (HINCKS & DIBB, 1935; 1958; BOUCHER & REYES-CASTILLO, 1997). In order to better estimate the phylogenetic relationships among the genera of Aulacocyclini, more characters need to be examined.

In the resultant tree of the present study, the phylogenetic relationships among *Cylindrocaulus, Ceracupes* and Aulacocyclini were not resolved. Moreover, the relationships among the species in the genera *Aulacocyclus* and *Taeniocerus* were also not clearly resolved. Further studies using new characters are therefore required in order to elucidate the phylogeny of the subfamily Aulacocyclinae. Molecular phylogenetic analyses are expected to improve the resolution of phylogeny.

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要　　約

細谷忠嗣・荒谷邦雄・近　雅博：形態形質にもとづき推定されたツツクロツヤムシ亜科の系統関係．—— ツツクロツヤムシ亜科の5属，*Aulacocyclus, Ceracupes, Comacupes, Cylindrocaulus* と *Taeniocerus* の系統関係を35形態形質にもとづき最節約法によって解析した．ツツクロツヤムシ亜科の20種と，クロツヤムシ亜科の5族を代表する5種を外群として分析に含めた．解析の結果，ツツクロツヤムシ亜科とツツクロツヤムシ族（*Aulacocyclus, Comacupes* および *Taeniocerus* からなる）の単系統性が支持された．さらに，*Cylindrocaulus, Ceracupes* と *Comacupes* の3属の種は，それぞれ同じ枝にまとまり，高いブートストラップ値で支持された．一方，*Aulacocyclus* と *Taeniocerus* の2属の種は分離されず，またそれらの種について明確なクラスターは認識されなかった．

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Elytra, Tokyo, **36**(2): 309–310, November 22, 2008

Spectrophotometric Analysis of Dorsal Coloration in *Phelotrupes auratus* (Coleoptera, Geotrupidae): A Comparison of Beetles Collected in 2001 and 2005

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The coprophagous beetle, *Phelotrupes auratus* (MOTSCHULSKY) (Coleoptera, Geotrupidae), is known to exhibit considerable variation in color (MIZUNO, 1964). TSUKAMOTO (1994) introduced a possibility that the coloration of this species may have changed over time in the Nara City population. However, based on qualitative assessments of dorsal coloration by eye, MIZUTA (2000) reported that there were no significant differences in beetles collected from Nara City in 1972–1975 and 1996–1997.

On the other hand, WATANABE *et al.* (2002) conducted spectrophotometric analyses of the dorsal coloration in *Phelotrupes auratus*, and found that the wavelength of the highest peak in the reflectance spectrum of visible region (400–700 nm), which they named $\lambda\max(\alpha)$, was the optimal parameter for discriminating the coloration of this species.

Following the methods of WATANABE *et al.* (2002), we measured reflectance spectra of the elytra in *Phelotrupes auratus* specimens from Mt. Wasamata in Nara Prefecture using a spectrophotometer (UV–240, Shimadzu, Japan), and compared the $\lambda\max(\alpha)$ between beetles collected in 2001 and 2005. Since there was no significant difference in $\lambda\max(\alpha)$ between sexes in samples caught in 2001 and 2005, respectively (Mann–Whitney *U*-test, $P>0.05$), male and female data were pooled for this study. As the result, no significant difference in $\lambda\max(\alpha)$ was detected between beetles collected in 2001 (mean±SD; 491±13.5 nm, n=26) and in 2005 (490±13.6 nm, n=25) (Mann–Whitney *U*-test, $P>0.05$). These findings suggest that the frequency distribution of $\lambda\max(\alpha)$ in the Wasamata population did not change in the four-year period from 2001 to 2005, though the present sample size was not so large.

Lastly, we wish to express our sincere thanks to emeritus Prof. M. IMAFUKU for use of the spectrophotometer. This study was supported in part by a Grant-in-Aid from the Japan Society for the Promotion of Science (No. 18570091).

Specimens examined. 9♂♂, 13♀♀, Mt. Wasamata, Nara Pref., 25–VIII–2001, M. AKAMINE leg.; 2♂♂, 2♀♀, ditto, 3–IX–2001; 4♂♂, 5♀♀, ditto, 3∼5–VI–2005; 9♂♂, 7♀♀, ditto, 11–VIII–2005.

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Elytra, Tokyo, **36**(2): 311–330, November 22, 2008

Contributions to the Knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China.

Part 31. Genus *Quedius* STEPHENS, 1829. Subgenus *Microsaurus* DEJEAN, 1833. Section 17

Aleš SMETANA

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Abstract Taxonomic and faunistic data on the species of the genus *Quedius* subgenus *Microsaurus*, from the People's Republic of China are provided. Four species are described as new: *Q. orestes* (Sichuan), *Q. hanno* (Sichuan), *Q. tyrrhus* (Sichuan), and *Q. zenon* (Sichuan). Male sexual characters, including the aedoeagus, are described and illustrated for the first time for *Quedius vafer* SMETANA, 1997 b. *Quedius tangi* ZHU, LI et HAYASHI, 2006 is transferred from the subgenus *Raphirus* STEPHENS, 1829 to the subgenus *Microsaurus* DEJEAN, 1833 of the genus *Quedius* STEPHENS, 1829, and it is suggested that the name *Q. tangi* may be a junior synonym of *Q. cingulatus* SMETANA, 2004. *Quedius ephialtes mianningius* ZHENG F. et ZHENG X., 2006 is placed in synonymy with *Q. ephialtes* SMETANA, 1997 a.

This is the thirty-first of a series of papers dealing with the Quediina of the People's Republic of China. Four new species are described: *Q. orestes* (Sichuan), *Q. hanno* (Sichuan), *Q. tyrrhus* (Sichuan), and *Q. zenon* (Sichuan). The previously unknown male sexual characters of *Quedius vafer* SMETANA, 1997 b are described and illustrated. *Quedius ephialtes mianningius* ZHENG F. et ZHENG X., 2006 is placed in synonymy with *Q. ephialtes* SMETANA, 1997 a. Many new records of already described species are presented. *Quedius antoni* SMETANA, 1995 b is recorded for the first time from Gansu.

The symbols used in the text, when referring to the depositions of specimens, are as follows:

ASC	Collection of Aleš SMETANA, Ottawa, Canada
MSC	Collection of Michael SCHÜLKE, Berlin, Germany
NMW	Naturhistorisches Museum, Wien, Austria

Quedius (*Microsaurus*) *przewalskii* REITTER

Quedius przewalskii REITTER, 1887, 211.

New record. [Sichuan]: Xuecheng Sammo, 3500 m, 31°46.29′N 103°07.15′E, 1.

VII.2004, M. Janata, 1 ♂ (ASC).

Comments. This is the second record of this species from Sichuan.

Quedius (Microsaurus) petilius SMETANA

Quedius petilius SMETANA, 1995 a, 242.

New records. [Sichuan]: Minshan Mts. Baima pass, 3000 m, 5.–20.VII.2005, 1 ♀ (MSC); Zheduo Shankou W Kangding, 4200 m, 29.6. 1998, M. Janata leg., 1 ♀ (ASC).

Comments. These are the first records of this species since it was described from one female specimen taken near Zhangla. The species is known at present only from Sichuan and the male sex of the species is still unknown.

Quedius (Microsaurus) moeris SMETANA

Quedius moeris SMETANA, 1995 a, 241.

New records. [Sichuan]: Str. v. Zhangla n. Huanglong Westseite, 3450–3850 m I. A. Puchner 1.–7.VI.2006, 1 ♂ (NMW). [Qinghai]: Yunning SI (lamasery) 2890 m 36° 45.6′N 102° 10.6′E 16.VII.2005, J. Hájek, D. Král & J. Růžička leg., 1♂ (ASC).

Comments. The species is at present known from Qinghai and Sichuan.

Quedius (Microsaurus) bito SMETANA

Quedius bito SMETANA, 1996 a, 7.

New record. [Sichuan]: Xuecheng Sammo, 3500 m, 31° 46.29′N 103° 07.15′E, 1. VII.2004, M. Janata, 2 ♂♂, 2 ♀♀ (ASC); Jiajin Shan, 3400 m, 30° 22.45′N 102° 16.644′ E, 15.VI.2002, M. Janata, 1 ♂ (ASC).

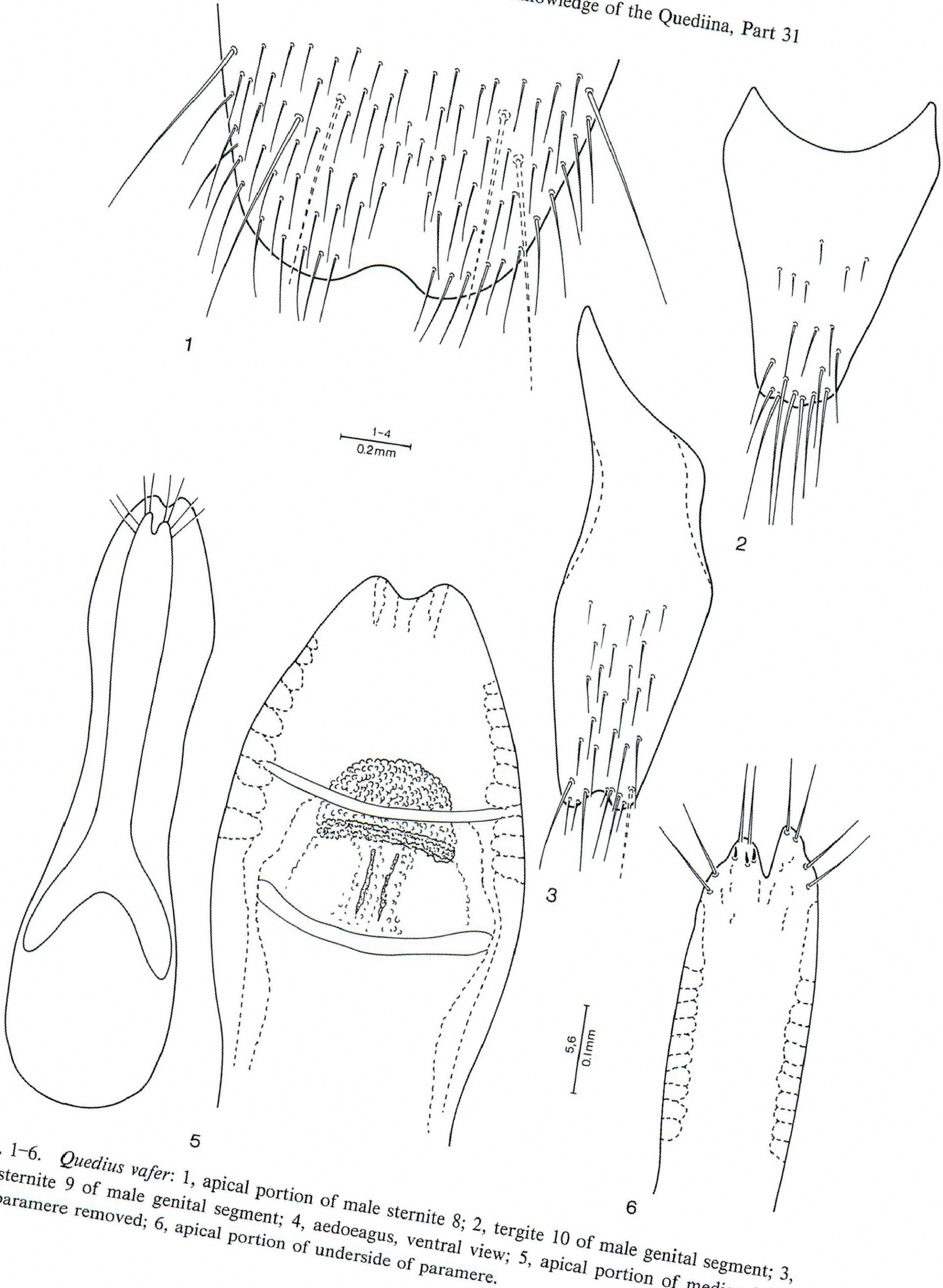
Comments. The species is at present known from Gansu, Sichuan, Yunnan, and Tibet.

Quedius (Microsaurus) acco SMETANA

Quedius acco SMETANA, 1996 a, 4.

New records. [Sichuan]: Str. zw. Danba u. Bamei, 40 km W Danba, 2460–2530 m, 27.VII.–6.VIII.2006 (No. 31–32), leg. A. Puchner, 2 ♂♂, 1 ♀ (ASC, NMW); W Zhier (Zi'er), 2.–3. VI.2006, 2866 m, 28° 22.29′N 101° 32.70′E, R. Sehnal & M. Tryzna, 1 ♂ (MSC); Ya'an Prefecture, Tianquan Co., W Erlang Shan Pass, 2780 m, 29° 51.27′N 102° 15.47′E, 29.VI.1999, leg. A. Pütz, 1 ♂ (APC).

Comments. The species is at present known from Gansu, Sichuan and Yunnan.



Figs. 1–6. *Quedius vafer*: 1, apical portion of male sternite 8; 2, tergite 10 of male genital segment; 3, sternite 9 of male genital segment; 4, aedoeagus, ventral view; 5, apical portion of median lobe, paramere removed; 6, apical portion of underside of paramere.

Quedius (Microsaurus) chremes SMETANA

Quedius chremes SMETANA, 1996 a, 10.

New records. [Hubei]: Dashennongjia mts., 31.5N 110.3E, 2500–3000 m, 21.–24. VI.2001, J. Turna leg., 1 ♀ (ASC). [Sichuan]: Str. v. Zhangla nach Pingwu, Umg. Huanglong National Park, 3100–3400 m, 2.–8.VI.2006, A. Puchner, 2 ♂♂, 4 ♀♀ (ASC, NMW); Minshan Mts. Mts. Baima pass, 3000 m, 5.–20.VII.2005, 1 ♀ (MSC); Ganzi Tibetian Auton. Pref. Yajiang Co., Shaluli Shan 32 km WNW Yajiang, 4300 m, 30° 08.07′N 100° 42.36′E, 4.VII.1999, leg. A. Pütz, 1 ♀ (APC).

Comments. The species is at present known from Gansu, Shaanxi and Sichuan.

Quedius (Microsaurus) vafer SMETANA

Quedius vafer SMETANA, 1997 b, 130.

New record. [Yunnan]: Dai Bali Auton. Pref., Diancang Shan W Dali 25° 41′20′′N 100° 06′12′′E 3160 m (small creek valley, litter and debris sifted) 27.V.2007, D. W. Wrase [02], 1 ♂ (MSC).

Comments. Only three females of the original series of this species were known until now. The description of the male follows:

Male. First four segments of front tarsus considerably dilated, each densely covered with modified pale setae ventrally, segment 2 markedly wider than apex of tibia (ratio 1.35); segment 4 narrower than preceding segments. Sternite 8 with three long setae on each side, with moderately wide and deep obtuse medioapical emargination, small triangular area before emargination flattened and smooth (Fig. 1). Genital segment with tergite 10 bearing several long setae at apical margin, otherwise sparsely setose (Fig. 2); sternite 9 with robust basal portion, broadly emarginate apically, with two differentiated long setae at each side of apical emargination (Fig. 3). Aedoeagus (Figs. 4–6) similar to that of *Q. bohemorum* SMETANA, 1997 c, but different in several details: paramere of different shape, more distinctly, deeply emarginate medioapically, apex of median lobe more distinctly emarginate medioapically, internal sac different (see figs. 23–25 in SMETANA, 1997 c).

Quedius (Microsaurus) cavazzutii SMETANA

Quedius cavazzutii SMETANA, 2004, 87.

New records. [Sichuan]: Str. v. Pingwu nach Nanping, Maoniu Shan, Nordseite, 3400–3450 m, 29.V.–5.VI.2006, I. A. Puchner, 5 ♂♂ (ASC, NMW); Minshan Mts. Mts. Baima pass, 3000 m, 5.–20.VII.2005, 3 ♂♂, 1 ♀ (ASC, MSC); Str. v. Pingwu nach Nanping, Umg. Beima Fenxigya, 1770 m, 29.V.–5.VI.2006, I. A. Puchner, 1 ♀ (NMW); betw Pingwu and Nanping, 2000 m, 10.VII.2004, V. Patrikeev, 1 ♀ (MSC).

Comments. The species was until now known only from the specimens of the original series, taken in the pass between Pingwu and Nanping.

Quedius (*Microsaurus*) *kucerai* SMETANA

Quedius kucerai SMETANA, 1996 b, 126.

New record. [Yunnan]: NW Yunnan mts. E Zhongdian, 3400–3700 m, 5.–14.VI. 2006, S. Murzin & I. Shokhin, 1 ♂ (MSC).

Comments. This is the second record of this species since it was described. It is still known only from the mountains around Zhongdian in northern Yunnan.

Quedius (*Microsaurus*) *guey* SMETANA

Quedius guey SMETANA, 2001, 188.

New record. [Hubei]: Dashennongjia mts. 31.4N 110.3E, 2700 m, 20.V.–7.VI. 2005, J. Turna leg., 1 ♂ (ASC).

Comments. This is the second record of this species from Hubei. It is at present known from Hubei and Shaanxi.

Quedius (*Microsaurus*) *shuang* SMETANA

Quedius shuang SMETANA, 2004, 91.

New record. [Sichuan]: Str. v. Pingwu nach Nanping, Maoniu Shan, Nordseite, 3400–3450 m, 29. V.–5.VI.2006, I. A. Puchner, 1 ♂, 1 ♀ (ASC, NMW); Minshan Mts. Mts. Baima pass, 3000 m, 5.–20.VII.2005, 5 ♂♂ (ASC, MSC).

Comments. These are the first records of the species since it was described. It occurs in the Baima pass in the Minshan Mts. together with *Q. cavazzutii*, *Q. songpan* SMETANA, 1999 b, *Q. petilius*, and *Q. chremes*.

Quedius (*Microsaurus*) *euanderoides* SMETANA

Quedius euanderoides SMETANA, 2004, 101.

New record. [Yunnan]: Hengduan Shan-Yanmen, 3300 m, 28° 00.484′N 90° 50.201′ E, 15.6. 2005, M. Janata, 1 ♂ (ASC).

Comments. This is the second record of this species from an area close to the type locality.

Quedius (*Microsaurus*) *biann* SMETANA

Quedius biann SMETANA, 2006, 78.

New record. [Sichuan]: Ganzi Tibetian Autonon. Pref. Daxue Shan, Mugecuo, upper lake, 3700 m, 30.09.18N 101.51.18E, 5.VII.1999, animal excrement sift, leg. A. Pütz, 1 ♂ (APC); same, 30.09.18N 101.51.16E, 27.VI.1999, 2 ♀♀ (APC, ASC).

Comments. The species was until now known only from the pass Zheduo Shankou west of Kangding. It seems that it may be more widely distributed at high elevations of Daxue Shan.

Quedius (*Microsaurus*) *goong* SMETANA

Quedius goong SMETANA, 2006, 79.

New records. [Yunnan]: Nujiang Lisu Aut. Pref., Gaoligong Shan, valley 18 km W Gongshan, 3020 m, 27°47′54′′N 98°30′13′′E, 7.VI.2007, mixed forest, litter, moss, wood sifted [CH07–24], M. Schülke, 5 ♂♂, 4 ♀♀ (ASC, MSC); same, but D. W. Wrase [24], 1 ♂, 2 ♀♀ (ASC, MSC); Nujiang Lisu Aut. Pref., Gaoligong Shan, creek valley 20 km NW Liuku, 3000 m, 25°58′49′′N 98°41′48′′E, bamboo, shrubs, litter sifted, 9. VI.2007, M. Schülke [CH07–27], 1 ♂ (ASC).

Comments. Additional specimens from areas near the type locality of the species.

Quedius (*Microsaurus*) *jaang* SMETANA

Quedius jaang SMETANA, 2006, 83.

New record. [Yunnan]: Nujiang Lisu Aut. Pref., Gaoligong Shan, valley 21 km W Gongshan, 3320 m, 27°47′03′′N 98°27′39′′E, moss, alder, bamboo Rhodod., sifted, 6. VI.2007 [CH 07–22], M. Schülke, 2 ♂♂ (ASDC, MSC); Nujiang Lisu Aut. Pref., Gaoligong Shan, valley 18 km W Gongshan, 3020 m, 27°47′54′′N 98°30′13′′E mixed forest, litter, moss, wood sifted, 7. VI. 2007 [CH07–24], M. Schülke, 1 ♀ (MSC); same, but D. W. Wrase [24], 1 ♂ (MSC).

Comments. Additional specimens from areas close to the type locality.

Quedius (*Microsaurus*) *yaoqi* SMETANA

Quedius yaoqi SMETANA, 1999 c, 542.

New record. [Sichuan]: 50 km W Dayi, Xiling Mts., 1400 m, 8.–11.V.2006, S. Murzin & I. Shokhin, 1 ♂ (MSC).

Comments. This is the second record of this species from Sichuan.

Quedius (*Microsaurus*) *songpan* SMETANA

Quedius songpan SMETANA, 1999 c, 547.

New record. [Sichuan]: Minshan mts., Baima pass, 3000 m, 5.–20.VII.2005, 1 ♂ (MSC); Str. v. Zhangla nach Pingwu, Umg. Huanglong National Park, 3100–3400 m, 2.–8.VI.2006, I. A. Puchner, 1 ♂, 2 ♀♀ (ASC, NMW).

Comments. Two additional localities of this species from northern Sichuan.

Quedius (*Microsaurus*) *echion* SMETANA

Quedius echion SMETANA, 1997 a, 65.

New records. [Gansu]: Gansu province. Dagcanglhamo (=Langmusi) env. 34°04.6–05.1N 102°37.7–38.1E (GPS) 3464–3644 m [Ch 5]/25.VI.2005, J. Hájek, D. Král & J. Růžička leg.; wet coniferous forest (Picea, Abies, Rhododendron) on N slope, 4 ♂♂, 5 ♀♀ (ASC, MSC). [Sichuan]: Li Xian, Miyaluo Nat. Res., Danzhamu valley, 3250 m, 31°23.902′N 103°14.827′E, 18.–22.V.2005, leg. R. Sehnal & M. Tryzna, 1 ♂ (MSC); Str. v. Zhangla nach Pingwu Umg. Huanglong National Park, 3100–3400 m, 2.–8.VI.2006, I. A. Puchner, 1 ♂ (NMW); Str. v. Jiuzhaigou n. Songpan, Gongangling-Pass, Nordseite, 2850–3480 m, 31.V.–7.VI.2006, I. A. Puchner, 2 ♂♂ (ASC, NMW).

Comments. The specimens from Dagcanglhamo come from near the type locality (SMETANA, 1997 a, 65) that was believed to be in Sichuan. Therefore, *Q. echion* is at present known from Gansu and from northern Sichuan.

Quedius (*Microsaurus*) *ephialtes mianningius* ZHENG F. et ZHENG X.

Quedius ephialtes mianningius ZHENG Fa-ke & ZHENG Xiao-Jiang, 2006, 20.

Comments. Quedius ephialtes mianningius was described based on 4 males bearing the following data: Sichuan: limekiln, Yele Nature Reserve, Mianning County, 101°59′–102°16′E–28°50′–29°00′N, 2900–3100 m, May 8–20, 1995, collected by Guo Jian".

I have not seen any specimens of the original series but, earlier, I received from Mr. ZHENG Fa-ke one male specimen with several labels in Chinese, one of them with the date "1995.V.20", one additional label "Mianning 7", and the determination label "*Q. ephialtes* SMETANA ZHENG". There is little doubt that the specimen comes from the same locality and was likely collected together with the specimens of the original series. *Quedius ephialtes* SMETANA, 1997 a is one of the commoner species widely distributed in Sichuan. It is therefore quite unlikely that the population in Yele Nature Reserve would be subspecifically different from specimens of other Sichuan provenience. And indeed, the above male specimen I was able to study, does not differ in any way from males of *Quedius ephialtes* of other provenience. Therefore, *Quedius mianningius* ZHENG Fa-ke & ZHENG Xiao-Jiang, 2006 becomes a junior objective synonym of *Quedius ephialtes* SMETANA, 1997 (**syn. nov.**).

It should be perhaps mentioned here that the character states of the aedoeagus may show some slight variability, just like most other character states. Therefore it is unrealistic to expect that the aedoeagus of every male specimen of certain species will match absolutely the published illustration. Similarly, every small difference in the setation of the sclerites of the male/female genital segments does not necessarily support establishment of a new taxon. A careful, complex evaluation of sets of characters, based on experience, is needed for establishment of a new taxon.

Quedius (*Microsaurus*) *tangi* ZHU, LI et HAYASHI

Quedius tangi ZHU, LI & HAYASHI, 2006, 42.

Comments. *Quedius tangi* was described based on two males labeled: "Mt. Sejila, Xizang A. R., alt. 3,700 m, 5.VIII.2005, Liang Tang leg." The specimens are deposited in the Department of Biology, Shanghai Normal University, Shanghai.

The species was assigned by the authors to the subgenus *Raphirus* and compared to *Quedius* (*Raphirus*) *taruni* SMETANA, 1988 from the Nepal Himalaya. I have not seen the two specimens of the original series, but the description and the illustrations allow certain conclusions. Firstly, *Q. tangi* is not even remotely similar or related to *Q. taruni*, which is a single member of the distinctive *taruni* species-group characterized by several synapomorphies in the chaetotaxy of the head and pronotum (see SMETANA, 1988). Secondly, based mainly on the chaetotaxy of the head, *Q. tangi* is undoubtedly a member of the subgenus *Microsaurus* and belongs to the *euryalus*-group of species of that subgenus.

Within that group, it is likely identical with *Q. cingulatus* SMETANA, 2004, a species that is widely distributed from central Sichuan to northwestern Yunnan, including localities that are not far from Tibetan border (see SMETANA, 2006, 69). The occurrence of *Q. cingulatus* in Tibet is very likely.

ZHU, LI & HAYASHI (2006, 39) record three species of *Quedius* as occurring in Xizang (Tibet): *Quedius* (*Raphirus*) *kozlovi* BOHÁČ 1988, *Q.* (*Raphirus*) *tibetanus* BOHÁČ, 1988 and *Q.* (*Microsaurus*) *turnai* SMETANA, 1999 a, and add the new species *Q. grandipenis*. However, from the species listed, only *Q. turnai* and *Q. grandipenis* occur in Xizang. The remaining two species were described from specimens originating from the material collected during the KOZLOV expedition to "eastern Tibet" in 1901. At that time "eastern Tibet" included areas that today do not belong to Tibet. The localities listed under the type material of *Q. kozlovi* are all in "bassein Goluboy reki", i.e. in northern Sichuan. The same applies to the localities listed under the type material of *Q. tibetanus*, except for "Orin-Nur" (lake Ngoring-Hu), which is in Qinghai. *Quedius kozlovi* is therefore known at present only from northern Sichuan, and *Q. tibetanus* from northern Sichuan and Qinghai. ZHU, LI & HAYASHI (2006, 39) entirely missed several additional species recorded from Tibet: *Q. antoni* (SMETANA, 2006, 68), *Q. bito* (SMETANA, 1999 a, 215), *Q. ennius* SMETANA, 1996 (SMETANA, 2006, 65), *Q. farkaci* SMETANA 1997 c (SMETANA, 2001, 182), and *Q. przewalskii* REITTER, 1887 (SMETANA, 1999 b, 522).

Quedius (*Microsaurus*) *antoni* SMETANA

Quedius antoni SMETANA, 1995 b, 233.

New records. [Gansu]: Gansu province, Xiahe (=Labrang) env. 35° 11.3′N 102° 30.6′E 3043 m (GPS), 19.–22.VI.2005, J. Hájek, D, Král & J. Růžička leg. [Ch 2], 1 ♂ (MSC). [Sichuan]: Xuecheng Sammo, 3500 m, 31° 46.29′N 103° 07.15′E, 1.VII. 2004, M. Janata, 1 ♂, 1 ♀ (ASC).

Comments. This is the first record of this species from Gansu. The species is at present known from Gansu, Sichuan, Tibet and Yunnan.

Quedius (*Microsaurus*) *fonteius* SMETANA

Quedius fonteius SMETANA, 1995 b, 247.

New records. [Qinghai]: Yunning Si [lamasery] 2890 m 36° 45.6′N 102° 10.6′E 1.–2.VII.2005, J. Hájek, D. Král & J. Růžička leg., 4 ♂♂, 1 ♀ (ASC); same, but 1.–16.VII. 2005, 4 ♂♂, 5 ♀♀ (ASC, MSC).

Comments. Specimens collected 1.–2.VII.2005 bear the following collection data: "individually under stones, in excrements and on vegetation on the pasture, coniferous forest, and along the path to a village". Those collected 1.–16.VII.2005 bear the following collection data: "baited pitfall traps (fish meat) with ethylene glycol: wet coniferous forest, close valley above the village". Specimens from the pitfall traps are in bad shape, with appendages to various extent missing, etc., obviously due to the extended exposure to the ethylene glycol in the traps.

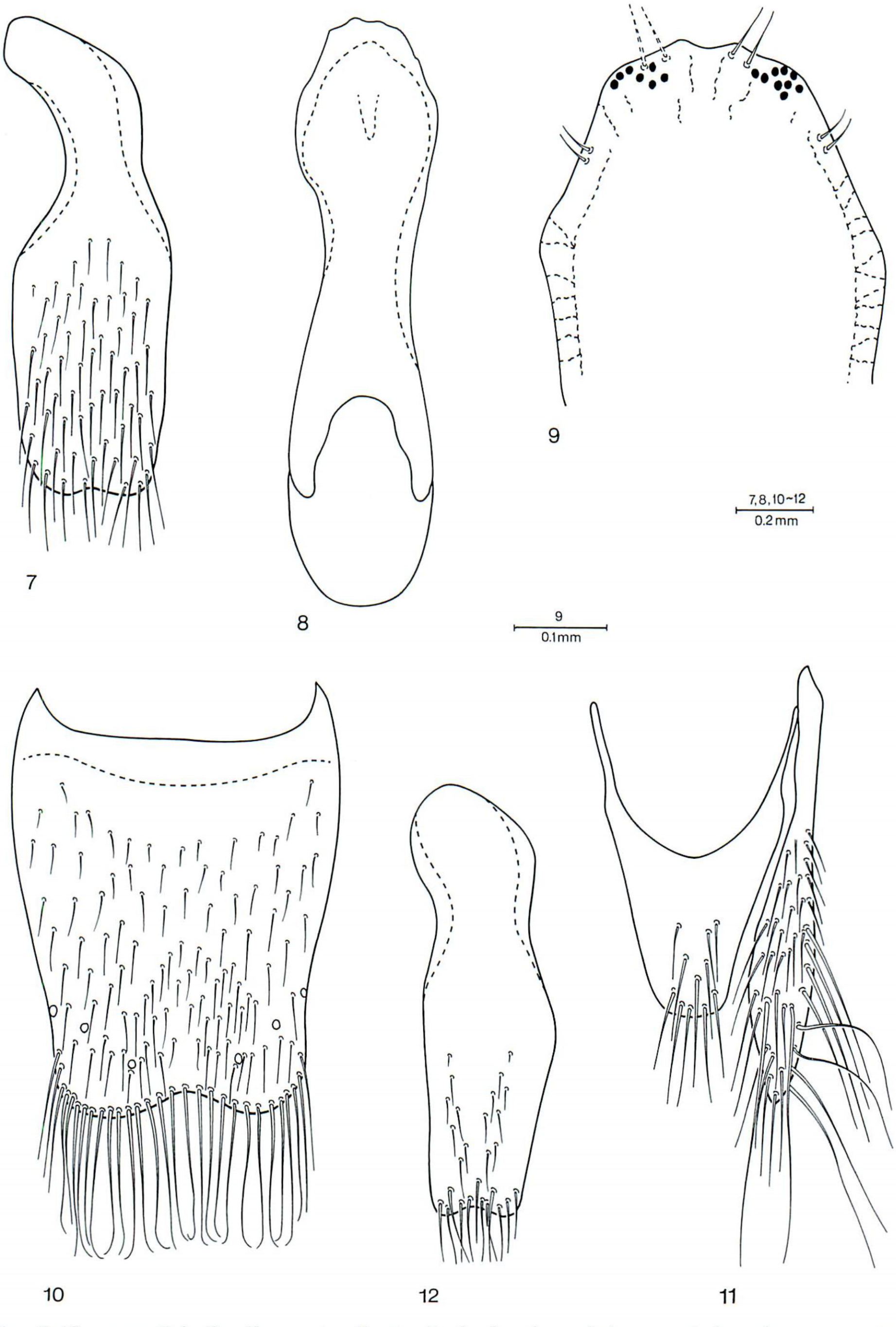
The additional puncture on the head between the posterior frontal puncture and the posterio-medial margin of the eye is present in all specimens but it is very small in some specimens, rarely there is another additional puncture present. The size of the specimens studied fluctuates between 6.8 mm and 8.5 mm.

Quedius (*Microsaurus*) *orestes* sp. nov.

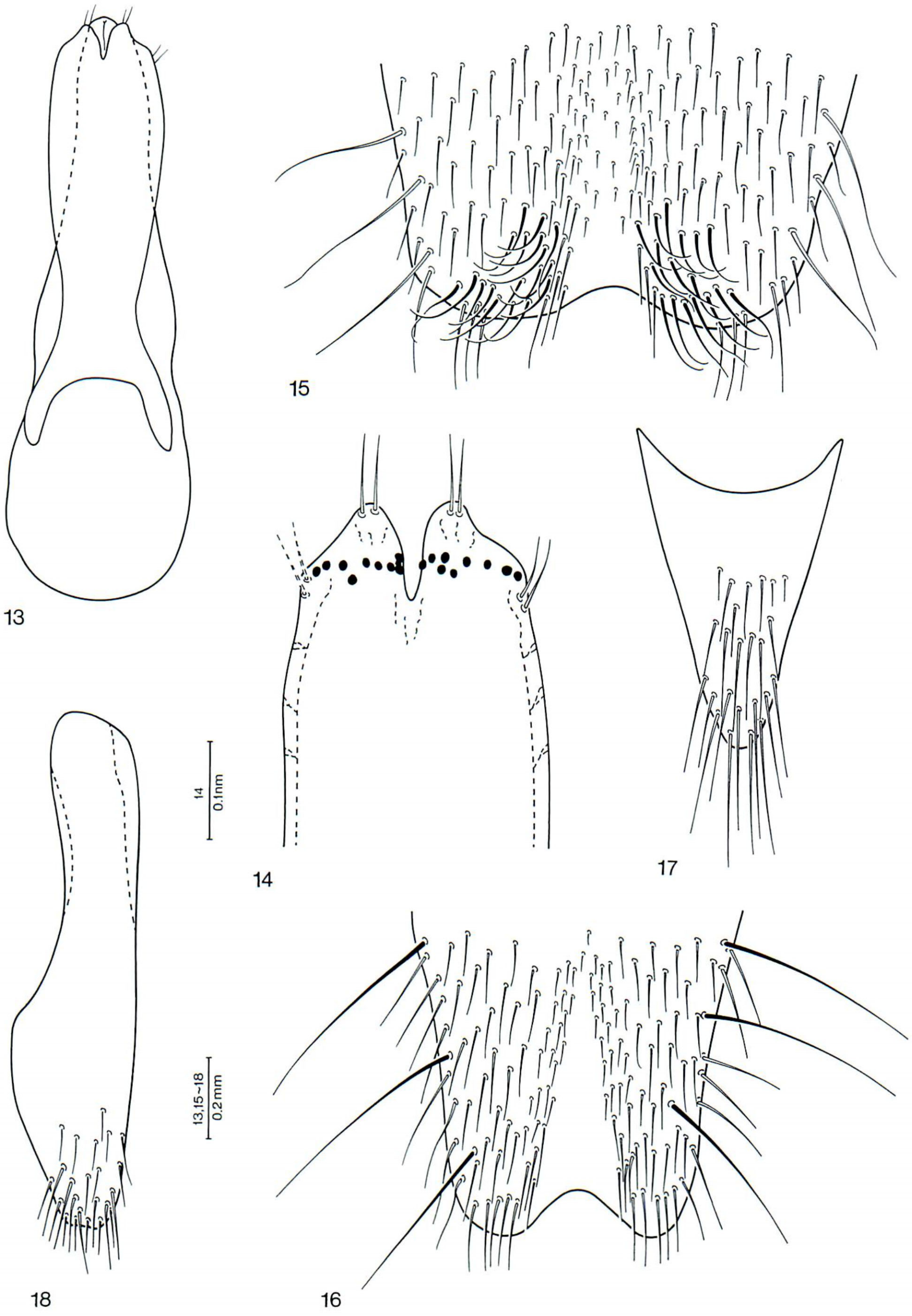
(Figs. 7–9)

Description. In all external characters similar to *Q. moeris* and different mainly by male sexual characters. Eyes smaller (ratio length of tempora/length of eyes=2.71, corresponding ratio in *Q. moeris*=2.11); antenna slightly longer, segments 4–6 somewhat longer than wide, outer segments about as long as wide (in *Q. moeris* segments 4–6 as long as wide, and outer segments mostly slightly wider than long).

Male. First four segments of front tarsus markedly dilated, slightly more so than those of *Q. moeris*, sub-bilobed, each densely covered with modified pale setae ventrally; segment 2 slightly wider than apex of tibia (ratio 1.16); segment 4 narrower than preceding segments. Sternite 8 probably with three large setae on each side (see Comments), apical margin with shallow and narrow, inconspicuous arcuate medioapical



Figs. 7–12. —— 7–9. *Quedius orestes*. 7, sternite 9 of male genital segment; 8, aedoeagus, ventral view; 9, apical portion of underside of paramere. —— 10–12. *Quedius hanno*: 10, apical portion of male sternite 8; 11, tergite 10 of male genital segment with stylus of tergite 9; 12, sternite 9 of male genital segment.



Figs. 13–18. —— 13, 14. *Quedius hanno*: 13, aedoeagus, ventral view; 14, apical portion of underside of paramere. —— 15–18. *Quedius tyrrhus*: 15, apical portion of male sternite 7; 16, apical portion of male sternite 8; 17, tergite 10 of male genital segment; 18, sternite 9 of male genital segment.

emargination, small triangular area before emargination somewhat flattened and smooth. Genital segment with sternite 9 with apical portion wide, almost parallel-sided, subtruncate apically (Fig. 7) (see Comments). Aedoeagus (Figs. 8, 9) large and robust, of quite characteristic shape; median lobe attenuate in middle portion, anteriorly markedly dilated into slightly asymmetrical, spoon-like apical portion, on face adjacent to paramere with acute medial carina far below apex of median lobe. Paramere large, covering almost entirely median lobe, widely attenuate at middle portion, anteriorly dilated into slightly asymmetrical apical portion of characteristic shape, with slightly trisinuate apex exceeding apex of median lobe; sensory peg setae on underside of paramere small, forming irregular group under each lateral angle of apical margin of paramere; two pairs of apical setae at apical margin and two slightly finer setae at each lateral margin below apex of paramere; internal sac simple, without larger sclerotized structures.

Female unknown.

Length 11.0 mm.

Type material. Holotype (male): CHINA: "CHINA. Prov. SICHUAN Str. v. Pingwu nach NANPING MAONIU SHAN, Nordseite 3400–3450 m I. A. PUCHNER 29.V.–5.VI. 2006". In the Naturhistorisches Museum, Wien, Austria.

Geographical distribution. Quedius orestes is at present known only from the type locality in northern Sichuan.

Bionomics. Nothing is known about the collection circumstances of the specimen. It is assumed that it was taken from a pitfall trap but nothing is known about the habitat the trap was set in.

Recognition and comments. Quedius orestes differs from any other species of the *przewalskii*-group by the unique shape of the aedoeagus.

Abdominal sternite 8 is somewhat damaged lateroapically, and the setation is to great extent missing, but basal portions of three large setae are present on one side. Tergite 10 of the genital segment is damaged apically, due to the presence of *Laboulbeniomycetes* that are abundant also on apical portions of the styli of tergite 9. Sternite 9 of the genital segments is also bearing *Laboulbeniomycetes* at apical margin, but the shape of the apical margin is not affected.

It is assumed that damages to the setation of some body parts were caused by the rather prolonged exposure to the fluids of the pitfall trap.

Etymology. The specific epithet is the name of *Orestes, -is*, m, the son of *Agamemnon* and *Clytaemnestra*, in apposition.

***Quedius* (*Microsaurus*) *hanno* sp. nov.**

(Figs. 10–14)

Description. Piceous-black with black head, elytral suture and apical margins of elytra narrowly paler, abdomen slightly iridescent; maxillary and labial palpi testaceous, antennae testaceobrunneous, first three segments partially slightly darkened, legs piceous-black with distinctly paler tarsi (but see Comments). Head of rounded quadrangular shape, wider than long (ratio 1.25), posterior angles entirely rounded, indistinct; eyes very large, moderately convex, tempora considerably shorter than eyes from above (ratio 0.42); no additional setiferous punctures between anterior frontal punctures; posterior frontal puncture situated close to posteriomedial margin of eye, separated from it by distance about equal to diameter of puncture, two punctures between it and posterior margin of head; temporal puncture touching posterior margin of eye, small additional puncture at posterior margin of eye between it and posterior frontal puncture; tempora with a few fine setiferous punctures; surface of head with very fine and dense microsculpture of transverse and oblique waves. Antenna moderately long, segment 3 somewhat longer than segment 2 (ratio 1.19), segments 4–7 longer than wide, gradually becoming shorter, outer segments about as long as wide, last segment about as long as two preceding segments combined. Pronotum as long as wide, widest at about posterior fourth, distinctly narrowed anteriad, with lateral margins continuously arcuate with broadly rounded base, transversely convex, lateral portions not explanate; dorsal rows each with three fine punctures; sublateral rows each with three punctures, posterior puncture situated behind level of large lateral puncture; microsculpture similar to that on head but slightly finer and denser. Scutellum impunctate, with dense, extremely fine microsculpture of transverse waves. Elytra relatively long, at base markedly narrower than pronotum at widest point, scarcely widened posteriad, at suture vaguely shorter (ratio 0.90), at sides somewhat longer (ratio 1.10) than pronotum at midline; punctation fine, slightly asperate, moderately dense, transverse interspaces between punctures mostly 2–3 times larger than diameters of punctures; pubescence piceous; surface between punctures without microsculpture. Wings fully developed. Abdomen with tergite 7 (fifth visible) with fine whitish apical seam of palisade fringe; second tergite (in front of first visible tergite) with very fine punctures along posterior margin; punctation of tergites similar to that on elytra, but slightly finer, evenly covering each tergite; pubescence piceous; surface between punctures with excessively fine and dense microsculpture of transverse striae.

Male (see Comments). Sternite 8 apparently with three long setae on each side (only insertion points apparent, see Fig. 10), with moderately wide and deep obtuse medioapical emargination, small triangular area before emargination flattened and smooth; entire apical margin of sternite, including medioapical emargination, bearing densely set, extremely long setae (Fig. 10). Genital segment with tergite 10 of characteristic shape, sparsely setose (Fig. 11); styli of tergite 9 robust, copiously setose (Fig. 11); sternite 9 short and wide, with very large basal portion, broadly emarginate apically (Fig. 12) (see Comments). Aedoeagus (Figs. 13, 14) relatively short and wide; median lobe shaped as in Fig. 13, apex broadly arcuate, with distinct medioapical longitudinal carina on face adjacent to paramere. Paramere markedly constricted in basal third, then widened into large and wide anterior portion entirely covering median lobe, with apex bilobed, lobes separated medially by deep and narrow emargination accommodating medioapical longitudinal carina of median lobe; apex of paramere not quite reaching apex of median lobe; sensory peg setae on underside of paramere forming transverse row on each side of medioapical emargination; two fine setae on top of each apical lobe and two similar setae on each lateral margin just below apex of paramere. Internal sac simple, without larger sclerotized structures.

Female. Not known.

Length 7.5 mm.

Type material. Holotype: China: "**CHINA**, Prov. SICHUAN Str. v. PINGWU nach NANPING MAONIU SHAN, Nordseite 2900–3000 m I. A. PUCHNER 29.V.–5. VI. 2006". In the Naturhistorisches Museum, Wien, Austria.

Geographical distribution. *Quedius hanno* is at present known only from the type locality in northern Sichuan.

Bionomics. The holotype was taken from a pitfall trap, but nothing is known about the habitat the trap was set in.

Recognition and comments. The holotype is seriously damaged by entirely missing both front legs, left middle leg and last two segments of left hind tarsus. Also, the pubescence of various body parts, including sternite 8, and sternite 9 of the genital segment, is to various extent damaged (Fig. 12 of the latter shows only the present setae, undisturbed setation is possibly more copious). The damages were undoubtedly caused by the prolonged exposure to the fluids of the pitfall trap.

To make the highly differentiated secondary male characters of this species available, I decided to describe it despite the severe damages to the holotype described above. The character state of the presence of the densely set, extremely long setae on apical margin of male sternite 8 is unique in that the setae are present also in the medioapical emargination of the sternite. The males of *Q. echion* and *Q. guey* bear similar, although not equally long, setae at apical margin of sternite 8, but the setae are missing in the medioapical emargination. The robust, copiously setose styli of tergite 9 of the male of *Q. hanno* are also unique.

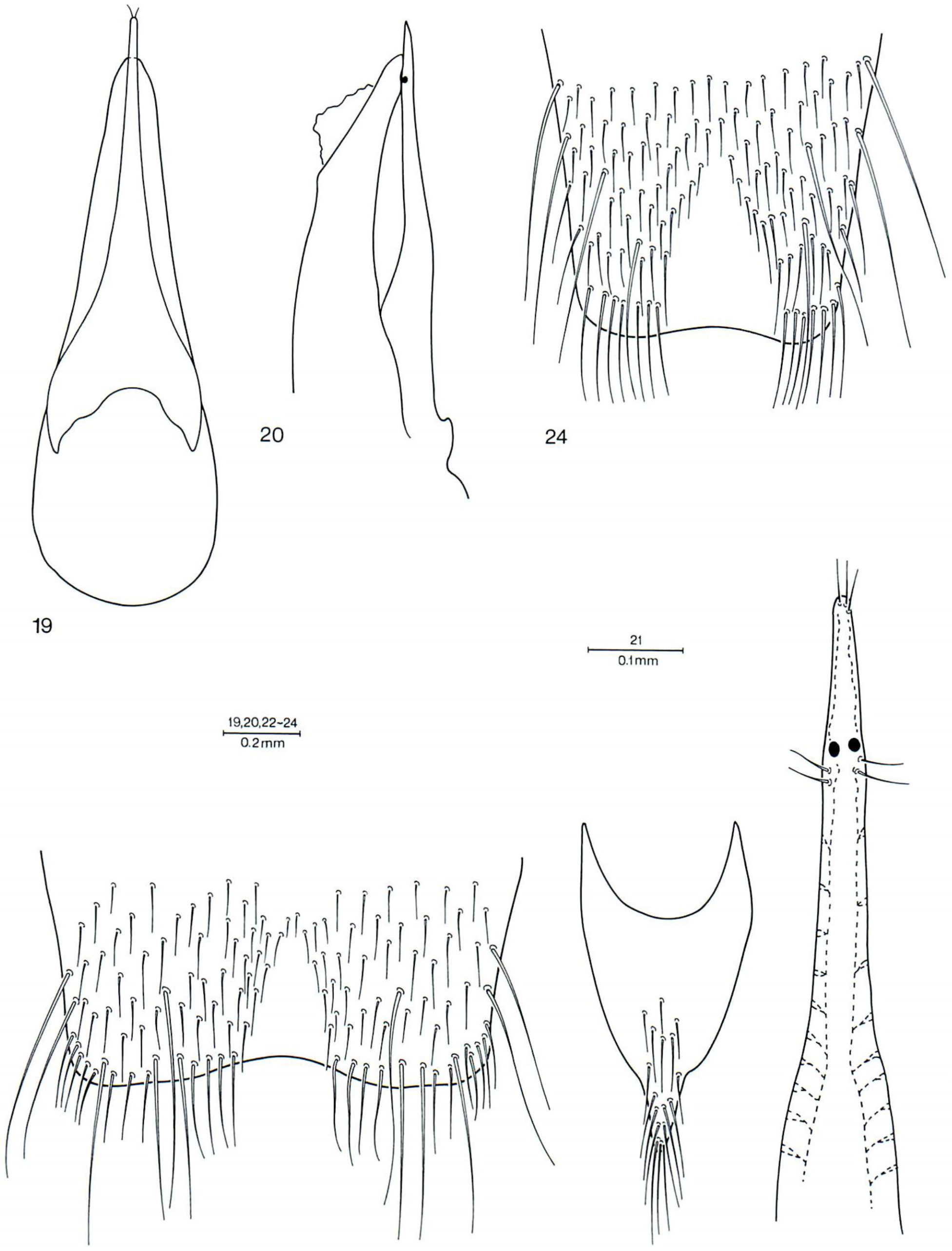
Etymology. The specific epithet is the name of *Hanno*, *-onis*, m, the general of the Carthaginians, who about the year 500 B. C. navigated the western coast of Africa, in apposition.

Quedius (*Microsaurus*) *tyrrhus* sp. nov.

(Figs. 15–22)

Description. In all characters, including chaetotaxy of head and pronotum, very similar to *Q. zheduo*, but different as follows: head somewhat larger, slightly more distinctly wider than long (ratio 1.22), eyes larger, tempora more conspicuously shorter than eyes from above (ratio 0.35). Antenna longer, segments 4–7 longer than wide, gradually becoming shorter, outer segments as long as wide.

Male. First four segments of front tarsus considerably dilated, slightly more so than those of *Q. zheduo*, each densely covered with modified pale setae ventrally; segment 2 markedly wider than apex of tibia (ratio 1.35); segment 4 narrower than



Figs. 19–24. —— 19–22. *Quedius tyrrhus*: 19, aedoeagus, ventral view; 20, apical portion of aedoeagus, lateral view; 21, apical portion of underside of paramere; 22, tergite 10 of female genital segment. —— 23, 24. *Quedius zenon*: 23, apical portion of male sternite 7; 24, apical portion of male sternite 8.

preceding segments. Sternite 6 with inconspicuous, wide medioapical emargination, with several long, black setae in and in front of emargination; sternite 7 with moderately wide and shallow, arcuate medioapical emargination, rather large area before emargination depressed and smooth, bordered on each side by numerous, very long black setae (Fig. 15); sternite 8 with three very long black setae on each side, with wide and deep, obtusely triangular medioapical emargination, large, elongate triangular area before emargination flattened and smooth (Fig. 16). Genital segment with tergite 10 narrow, elongate, with narrowly arcuate apex, setose as in Fig. 17; sternite 9 of characteristic shape, sparingly setose (Fig. 18). Aedoeagus (Figs. 19–21) rather large, with voluminous basal bulbus; median lobe evenly narrowed into subacute apex. Paramere of quite characteristic shape, with middle and apical portions conspicuously narrow, rod-like, with apex considerably exceeding apex of median lobe; three minute setae at apex and two setae at each lateral margin just below sensory peg setae; underside of paramere with two peg setae, situated quite a distance below apex of paramere. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but considerably less dilated; segment 2 about as wide as apex of tibia. Genital segment with tergite 10 relatively narrow, considerably narrowed into slightly differentiated apical portion with acute apex, sparingly setose, as in Fig. 22.

Length 5.8–6.5 mm.

Type material. Holotype (male) and allotype (female): China: "**CHINA**, Prov. SICHUAN Str. v. ZHANGLA nach PINGWU Umg. HUANGLONG National Park, 3100–3400 m I. A. PUCHNER 2.–8.VI.2006". Holotype in the Naturhistorisches Museum, Wien, Austria; allotype in the SMETANA collection, Ottawa, Canada.

Paratypes: China: [Sichuan]: same data as holotype, 7 ♂♂, 3 ♀♀ (ASC, NMW).

Geographical distribution. Quedius tyrrhus is at present known only from the type locality in northern Sichuan.

Bionomics. The specimens of the original series were taken from pitfall traps, but nothing is known about the habitat the traps were set in.

Recognition and comments. Quedius tyrrhus belongs to a lineage within the *euryalus* species-group, containing *Q. fabrii* SMETANA, 2006, *Q. janatai* SMETANA, 2004, *Q. terng* SMETANA, 2006, *Q. tronqueti* SMETANA, 1999 a and *Q. zheduo*. All above species, except *Q. zheduo*, differ from *Q. tyrrhus,* in addition to the differently shaped aedoeagus, by the simple, not modified male sternite 7. *Quedius zheduo* differs by the different modification of the male sternite 7 (see fig. 43 in SMETANA, 1999 a), and by the differently shaped tergite 10 of the female genital segment (see fig. 51 in SMETANA, 1999 a). See also Comments under the following species *Q. zenon.*

The allotype is missing right hind leg. Most paratypes are missing various appendages, particularly the antennae (entirely or partially).

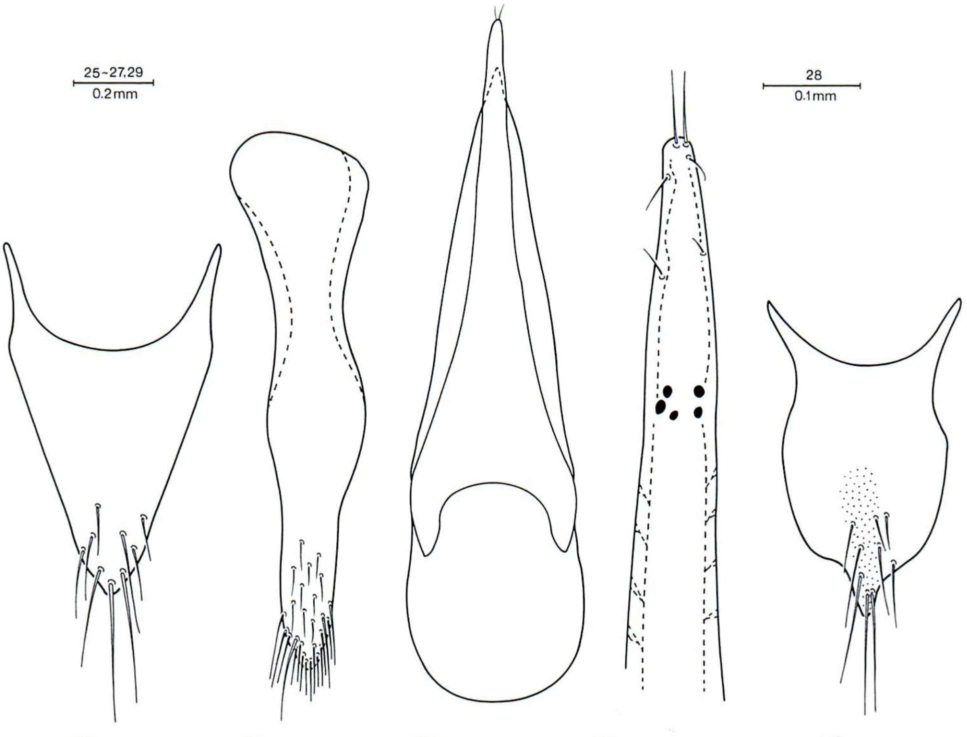
Etymology. The specific epithet is the name of *Tyrrhus*, *-i*, m, the shepherd of King *Latinus*, in apposition.

Quedius (*Microsaurus*) *zenon* sp. nov.

(Figs. 23–29)

Description. In all characters very similar to *Q. tyrrhus* and different only by both male and female sexual characters.

Male. First four segments of front tarsus markedly dilated, slightly less so than those of *Q. tyrrhus*, each densely covered with modified pale setae ventrally; segment 2 wider than apex of tibia (ratio 1.20); segment 4 narrower than preceding segments. Sternite 6 not modified; sternite 7 with moderately wide, shallow, rounded medioapical emargination, small area before emargination flattened and smooth, conspicuous black setae at each side of flattened area absent (Fig. 23); sternite 8 with four long setae on each side, with inconspicuous arcuate medioapical emargination, large triangular area before emargination flattened and smooth (Fig. 24). Genital segment with tergite 10 similar to that of *Q. tyrrhus*, but shorter and distinctly less setose (Fig. 25); sternite 9 elongate, of characteristic shape, sparingly setose (Fig. 26). Aedoeagus (Figs. 27, 28) similar to that of *Q. tyrrhus*, but median lobe anteriorly rather abruptly narrowed into



Figs. 25–29. *Quedius zenon*: 25, tergite 10 of male genital segment; 26, sternite 9 of male genital segment; 27, aedoeagus, ventral view; 28, apical portion of underside of paramere; 29, tergite 10 of female genital segment.

acute apex. Paramere similar to that of *Q. tyrrhus*, but wider; two fine setae at apex, two minute setae at each lateral margin below apex; underside of paramere with five to seven peg setae of different size, situated quite a distance below apex of paramere. Internal sac without larger sclerotized structures.

Female. First four segments of front tarsus similar to those of male, but less dilated; segment 2 about as wide as apex of tibia. Genital segment with tergite 10 of characteristic shape, with differentiated apical portion, pigmented medioapically, sparingly setose, as in Fig. 29.

Length 6.0–6.5 mm.

Type material. Holotype (male): China: "CHINA Sichuan Xuecheng Sammo 3500 m 31°46.29′N 103°07.15′E 1.VII.2004 M. Janata". In the SMETANA collection, Ottawa, Canada. Allotype (female): China: "CHINA: N-Sichuan Pass betw. Songpan & Nanping, E side, 3450–3500 m, 21.VI.2002, leg. S. Murzin & I. Shokhin". In the SCHÜLKE collection, Berlin.

Paratype: China: [Sichuan]: same data as allotype, 1 ♂ (ASC).

Geographical distribution. Quedius zenon is at present known from two localities in northern Sichuan.

Bionomics. Nothing is known about the collecting circumstances of the specimens of the original series.

Recognition and comments. Quedius zenon belongs to the same lineage of species mentioned under *Q. tyrrhus*. It is closest to the two species with modified male sternite 7 (*Q. zheduo* and *Q. tyrrhus*), but differs from both by both the male and female sexual characters.

The holotype is missing the right hind leg and the last two segments of the middle left tarsus.

Etymology. The specific epithet is the name of *Zenon*, *-onis*, m, the Epicurean philosopher, the teacher of *Cicero* and *Atticus*, in apposition.

要　約

A. SMETANA: 中国産ツヤムネハネカクシ亜属に関する知見. 31. ツヤムネハネカクシ属 *Microsaurus* 亜属の 17. —— *Microsaurus* 亜属のツヤムネハネカクシの 4 新種を中国四川省の北東部から記載し，1 種の所属亜属を変更し，また，雌のみが知られていた 1 種の雄を初めて記載し，ほかの多くの種について新しい産地を記録した.

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——— 1995 b. Ditto. Subgenus *Microsaurus* DEJEAN, 1833. Section 2. *Bull. natn. Sci. Mus.*, *Tokyo*, (A), **21**: 231–250.

——— 1996 a. Ditto. Part 3. Subgenus *Microsaurus* DEJEAN, 1833. Section 3. *Ibid.*, (A), **22**: 1–20.

——— 1996 b. Ditto. Part 5. Subgenus *Microsaurus* DEJEAN, 1833. Section 4. *Ibid.*, (A), **22**: 113–132.

——— 1997 a. Ditto. Part 6. *Microsaurus* DEJEAN, 1833. Section 5. *Ibid.*, (A), **23**: 51–68.

——— 1997 b. Ditto. Part 8. Quediini collected by S. UÉNO and Y. WATANABE in Yunnan. *Elytra*, *Tokyo*, **25**: 129–134.

——— 1997 c. Ditto. Part 9. *Microsaurus* DEJEAN, 1833. Section 7. *Ibid.*, **25**: 451–473.

——— 1999 a. Ditto. Part 13. *Microsaurus* DEJEAN, 1833. Section 8. *Ibid.*, **27**: 213–240.

——— 1999 b. Ditto. Part 15. *Microsaurus* DEJEAN, 1833. Section 9. *Ibid.*, **27**: 519–534.

——— 1999 c. Ditto. Part 16. *Microsaurus* DEJEAN, 1833. Section 10. *Ibid.*, **27**: 535–551.

——— 2001. Ditto. Part 19. *Microsaurus* DEJEAN, 1833. Section 11. *Ibid.*, **29**: 181–191.

——— 2004. Ditto. Part 24. Subgenus *Microsaurus* DEJEAN, 1833. Section 14. *Ibid.*, **32**: 85–103.

——— 2006. Ditto. Part 27. Subgenus *Microsaurus* DEJEAN, 1833. Section 15. *Ibid.*, **34**: 63–94.

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ZHENG, Fa-ke, & ZHENG, Xiao-jiang, 2006. New subspecies of *Quedius* (*Microsaurus*) *euryalus* group from China (Coleoptera: Staphylinidae, Staphylininae). *J. China West Normal Univ.*, (Nat. Sci.), **27**: 20–22.

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Correction

Aleš SMETANA

Agriculture and Agri-Food Canada, Research Branch,
Central Experimental Farm, K. W. Neatby Bldg.,
Ottawa, Ontario K1A 0C6, Canada

In my paper, published recently in this journal (SMETANA, 2008), an inadvertent error happened when citing the type material of *Quedius bann* by not providing the depository of the holotype, which technically makes this name unavailable according to the current Code (Art. 16.4.2). To remedy this shortcoming, the proper version of the listing of the holotype of *Quedius* (*Raphirus*) *bann* is presented below:

Type material. Holotype (male): China: "CHINA: W Sichuan, Pass Zheduo Shankou W Kangding, W slope, 4000 m, 29°58′N101°47′E, 17.VII.1998, A. Smetana [C84]" / "1998 China Expedition J. Farkač, D. Král, J. Schneider & A. Smetana". In the SMETANA collection, Ottawa, Canada.

Reference

SMETANA, A., 2008. Contributions to the knowledge of the Quediina (Coleoptera, Staphylinidae, Staphylinini) of China. Part 29. Genus *Quedius* STEPHENS, 1829. Subgenus *Raphirus* STEPHENS, 1829. Section 6. *Elytra*, *Tokyo*, **36**: 181–198.

Elytra, *Tokyo*, **36**(2): 331–341, November 22, 2008

New Brachypterous *Platydomene* (Coleoptera, Staphylinidae) from Mountain Areas of Central Honshu, Japan

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Abstract Five species of the staphylinid genus *Platydomene* from central Honshu, Japan, are dealt with. Four species of these, are described as new species under the names *P. hakusana, P. kojimai*, *P. nikkoensis* and *P. hirogawarana*, and the remaining one determined as *P. nobilis* (Sawada) is newly recorded with collecting data.

Four species of the staphylinid genus *Platydomene* in the subfamily Paederinae have hitherto been known from Japan. Examining the collection of the Japanese species of this genus, I have found a number of interesting things obtained in mountain areas of central Honshu. Most specimens of them were obtained from under dead leaves accumulated in deciduous broadleaved forests, and two specimens from Mt. Hakusan were obtained by using vineger and pitfall traps set in the alpine zone. They were classified into five species, which seem to form a species-group of their own related to *P. nobilis* (Sawada, 1965) from the Northern Japanese Alps in view of bronzed elytra and reduced hind wings.

After a close examination, it has become clear that one of the five is referable to *P. nobilis* and the remaining four are new to science for reason of peculiarity of the male genital organ different from those of previously known species. They will be described in the present paper. All the type specimens of the four new species to be designated are deposited in the collection of the Laboratory of Entomology, Tokyo University of Agriculture.

Before going further, I wish to express my cordial thanks to Dr. Shun-Ichi Uéno, Visiting Professor at the Tokyo University of Agriculture, for his kind advice on the present study. Deep gratitude is also due to Mr. Michiaki Hasegawa, Toyohashi Museum of Natural History, Dr. Hiroaki Kojima, Tokyo University of Agriculture, Dr. Ichiji Togashi, Hakusan-shi, and Mr. Takashi Watanabe, Fujisawa-shi, for their kindness in supplying me with the specimens used in this study, and to Mr. Tateo Ito, Yawata-shi, for his kindness in giving useful information, and to Mr. Junnosuke Kanotoh, Laboratory of Entomology, Tokyo University of Agriculture, for taking the photographs inserted in this paper.

Platydomene noblis (SAWADA)

[Japanese name: Dôgane-nagahanekakushi]

Lobrathium (*Platydomene*) *nobile* SAWADA, 1965, Ent. Rev., Japan, Osaka, **18**: 11, pl. 2.
Platydomene nobilis: SMETANA, 2004, Cat. Palaearct. Coleopt., **2**: 601.

This species was originally described by SAWADA (1965, p. 11) on the basis of four male specimens obtained at three different localities of the Northern Japanese Alps in central Honshu, Japan. Since then, it has not been reported again. Recently, I had an opportunity to examine seven specimens, including female, of this species. Therefore, I am going to record their collecting data and also to give a short description of the female.

Specimens examined. 3 ♀♀, Renge-onsen, Itoigawa-shi, Niigata Pref., Honshu, Japan, 30–VII–2003, T. WATANABE leg.; 1 ♂, 1 ♀, same locality and collector as above, 27–VIII–2003; 1 ♂, Mt. Sugoroku-dake, N. Jpn. Alps, Gifu Pref., Honshu, Japan, 27–IX–1985, Y. WATANABE leg., 1 ♂, Mt. Norikura-dake, Nagano Pref., Honshu, Japan, 27, 28–VII–1985, S. TSUYUKI leg.

Female. Similar in general appearance to male, but different from it in the 8th abdominal sternite narrowed towards the subtruncate apex, and the 7th sternite is simple.

Distribution. Japan (Northern Japanese Alps in central Honshu).

Bionomics. The specimens obtained from Renge-onsen were found out by sifting dead leaves in a broadleaved forest at an altitude of 1,500 m. A specimen from Mt. Sugoroku-dake was obtained from under a stone in the alpine zone at an altitude of about 2,800 m.

Platydomene hakusana Y. WATANABE, sp. nov.

[Japanese name: Hakusan-dôgane-nagahanekakushi]

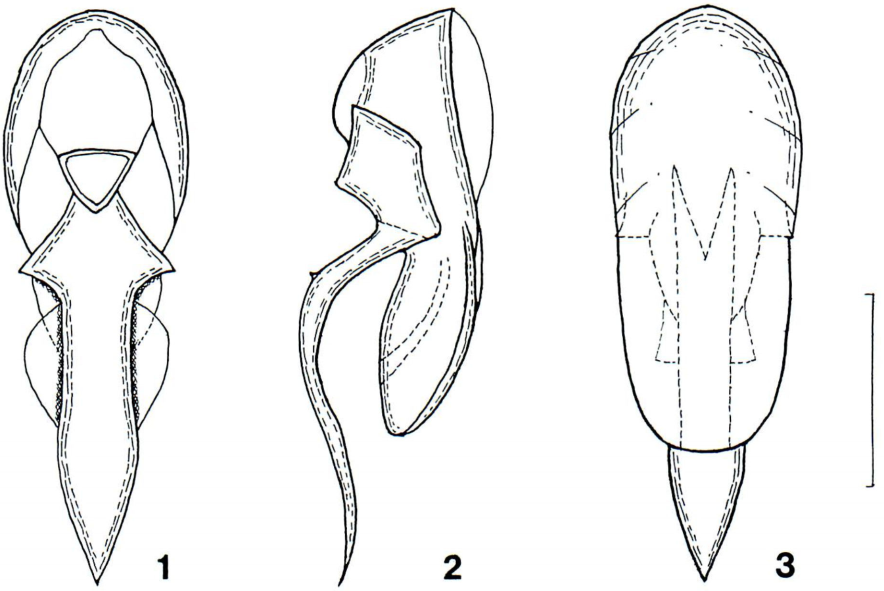
(Figs. 1–3)

Lobrathium sp.: HIRAMATSU, 2002, Biogeography, **4**: 16.

Body length: 6.1–6.3 mm (from front margin of head to anal end); 3.3–3.6 mm (from front margin of head to elytral apices).

Body elongate, nearly parallel-sided and subdepressed above. Colour blackish brown and moderately shining, with mouth parts, antennae and legs reddish brown, elytra with slightly bronzed reflection.

Male. Head suborbicular, as long as wide, and gently elevated medially, widest at the middle and more strongly narrowed posteriad than anteriad; lateral sides gently arcuate; frontal area between antennal tubercles flattened and glabrous except for a large setiferous puncture inside each antennal tibercle; surface densely and coarsely punctured, the punctures becoming much closer and finer in latero-basal parts; eyes small and nearly flat, their longitudinal diameter less than a half as long as postocular



Figs. 1–3. Male genital organ of *Platydomene hakusana* Y. WATANABE, sp. nov.; dorsal view (1), lateral view (2), and ventral view (3). Scale: 0.5 mm.

part. Antennae moderately long, extending a little beyond the middle of pronotum and not thickened apicad, with basal segment polished, 2nd subopaque, the remainings opaque, 1st segment robust and strongly dilated apicad, more than twice as long as wide, 2nd distinctly longer than wide (length/width=1.43), a half as long as and a little narrower than 1st (2nd/1st=0.93), 3rd equal in both length and width, 4th to 10th more or less moniliform and equal in both length and width to one another, each somewhat longer than wide (length/width=1.20), a little shorter (each of 4th to 10th/3rd=1.33) and slightly narrower (each of 4th to 10th/3rd=0.89) than 3rd, 11th fusiform, more than 1.5 times as long as wide and somewhat broader than 10th (11th/10th=1.20), subacuminate at the apex.

Pronotum gently elevated medially and slightly narrowed posteriad, distinctly longer than wide (length/width=1.20), a little longer (pronotum/head=1.14) but slightly narrower (pronotum/head=0.95) than head; lateral sides almost straight except near anterior and posterior angles as seen from dorsal side, anterior margin arcuate though slightly emarginate at the middle, posterior margin subtruncate, anterior angles obtuse and invisible from above, posterior ones rounded; surface rather densely covered with somewhat coarser punctures than those on head, the median longitudinal smooth space indistinct. Scutellum relatively small and subtriangular, uneven and provided with a few minute setiferous punctures on the surface. Elytra subtrapezoidal, slightly dilated posteriad and subdepressed above, slightly longer than wide (length/width=1.05), slightly shorter (elytra/pronotum=0.96) but a little wider than pronotum (elytra/pronotum=1.10); lateral sides gently arcuate, posterior margin emarginate at the middle and forming an obtuse re-entrant angle; posterior angles rounded; surface densely and roughly punctured; epipleuron provided with a longitudinal carina inside the outer margin. Hind wings degenerated to minute lobes one-fourth as long as elytra. Legs moderately long; profemur thickened, but abruptly constricted in apical fourth; protibia somewhat dilated apicad, hollowed in basal half on the inner margin and closely covered with short yellowish setae on the surface of hollow; meso- and metatibae simple; protarsal segments somewhat dilated.

Abdomen elongate, gradually dilated towards 7th segment, and then abruptly narrowed apicad, all the tergites closely, finely punctured and covered with fine brownish pubescence, 3rd to 7th tergites each shallowly and transversely depressed along the base; 7th sternite shallowly and broadly emarginate at the middle of posterior margin and somewhat flattened in front of the emargination; 8th sternite subtriangularly excised at the middle of posterior margin and provided with a relatively deep and oblong depression before the excision, bottom of the depression asperate.

Genital organ elongate and symmetrical. Median lobe elliptical and gradually narrowed towards the apex which is subtruncated. Fused paramere narrower but distinctly longer than median lobe, gently constricted at the median part and abruptly narrowed towards the pointed apex as seen from dorsal side, suddenly curved to the right side at basal third and provided with a minute spine-like projection at basal fourth of the outer side in profile.

Female. Similar in general appearance to male, but different from it in the 8th abdominal sternite narrowed towards the subtruncated apex.

Type series. Holotype: ♂, Mt. Hakusan, Ishikawa Pref., Honshu, Japan, 28–VII–1993, I. TOGASHI leg.; allotype: ♀, near Midorigaike, Mt. Hakusan, Ishikawa Pref., Honshu, Japan, 14, 15–IX–1988, M. HASAGAWA leg. Paratypes: 1 ♂, Midagahara Marsh, Mt. Hakusan, Shiramine-mura, Ishikawa Pref., Honshu, Japan, 11–VII–2000, S. HIRAMATSU leg.; 1 ♀, Murodô, Mt. Hakusan, Shiramine-mura, Ishikawa Pref., Honshu, Japan, 11–VII–2000, S. HIRAMATSU leg.

Distribution. Japan (Mt. Hakusan in central Honshu).

Remarks. The present new species is closely similar in general appearance as well as in male genital organ to *P. nobilis* (SAWADA) from the Northern Japanese Alps, but different from it in the following points: Body smaller; head slightly less coarsely punctured; pronotum slightly narrower than head, surface more coarsely and more densely punctures, the median longitudinal smooth space obscure; elytra somewhat depressed above, slightly longer than wide, surface slightly more coarsely punctured; abdominal tergites each slightly more coarsely punctured; fused paramere of male genital organ less constricted near the middle and less dilated in apical third.

Bionomics. The holotype was obtained from under a stone in the alpine zone between Aoishi and Murodô on Mt. Hakusan at an altitude of 2,300–2,500 m. The allotype was found near Midorigaike on the same mountain at an altitude of 2,500 m. One paratype was obtained by using a vinegar trap set in Midorigaike Marsh on the same mountain at an altitude of about 2,200 m. The remaining one paratype was found in a pithall trap set in the *Pinus pumila* community near Murodô on the same mountain at an altitude of 2,500 m.

Etymology. The specific epithet of this new species is derived from Mt. Hakusan, the type locality.

Platydomene kojimai Y. WATANABE, sp. nov.

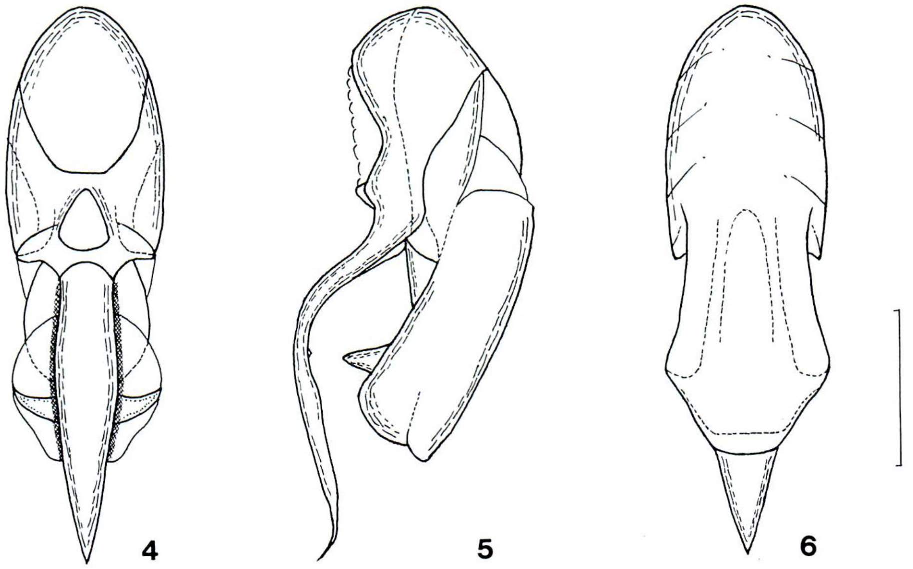
[Japanese name: Kojima-dôgane-nagahanekakushi]

(Figs. 4–6)

Body length: 6.3–7.2 mm (from front margin of head to anal end); 3.4–4.0 mm (from front margin of head to elytral apices).

Male and female. Similar in general appearance to *P. hakusana*, but slightly different from it in configuration of male genital organ and the following points: Head suborbicular, slightly more convex at the middle than in *P. hakusana,* slightly longer than wide (length/width=1.02), widest at the middle and slightly more strongly narrowed posteriad than anteriad; postocular part more strongly arcuate and somewhat longer (postocular part/longitudinal diameter of eye=2.70) than in *P. hakusana*; surface slightly more densely and slightly less coarsely punctured on the vertexal area than in *P. hakusana*, the punctures becoming much closer and finer in latero-posterior parts as in *P. hakusana*. Antennae moderately long and similar in articulation to those of *P. hakusana.*

Pronotum gently elevated medially and more strongly narrowed posteriad than in



Figs. 4–6. Male genital organ of *Platydomene kojimai* Y. WATANABE, sp. nov.; dorsal view (4), lateral view (5), and ventral view (6). Scale: 0.5 mm.

P. hakusana, somewhat longer than wide (length/width = 1.18), somewhat longer (pronotum/head = 1.15) than though as wide as head; lateral sides slightly arcuate, anterior margin gently arcuate though semewhat emarginate at the middle, posterior margin subtruncate, anterior and posterior angles similar to those of *P. hakusana*; surface densely covered with slightly less coarse punctures than those of *P. hakusana,* provided with a smooth spot at the middle before posterior margin, the spot sometimes extending anteriad. Scutellum subtriangular, surface uneven. Elytra similar in configuration to those of *P. hakusana,* a little longer than wide (length/width = 1.06), slightly shorter (elytra/pronotum = 0.98) but a little wider than pronotum (elytra/pronotum = 1.09); lateral sides and posterior margin similar to those of *P. hakusana*. Hind wings reduced as in *P. hakusana*. Legs similar in structure to those of *P. hakusana*.

Abdomen elongate, gradually narrowed towards 7th segment as in *P. hakusana,* each tergite similarly punctured as in *P. hakusana*; 8th sternite in male more narrowly and more shallowly excised at the middle of posterior margin than in *P. hakusana* and longitudinally depressed before the excision, bottom of the depression somewhat sparsely asperate though sometimes smooth in posterior half; in female, 8th sternite narrowed towards the apex which is subtruncate.

Male genital organ spindle-shaped; median lobe elliptical though somewhat constricted at the middle as seen from ventral side, provided with a subtriangular projection at posterior third of the inner side in profile. Fused paramere elongate, much narrower and longer than median lobe, nearly parallel-sided in basal half though abruptly narrowed towards the pointed apex in apical half as seen from dorsal side.

Type series. Holotype: ♂, allotype: ♀, Mt. Chausu-dake, Shizuoka Pref., Honshu, Japan, 8–X–1991, H. KOJIMA leg. Paratype: 1 ♂, same data as for the holotype.

Distribution. Japan (central Honshu).

Bionomics. All the type specimens were obtained from under dead leaves accumulated in a deciduous broadleaved forest at an altitude of 2,500 m.

Etymology. The specific epithet of this new species is given after Dr. Hiroaki KOJIMA, who collected all the specimens of the type series.

Platydomene nikkoensis Y. WATANABE, sp. nov.

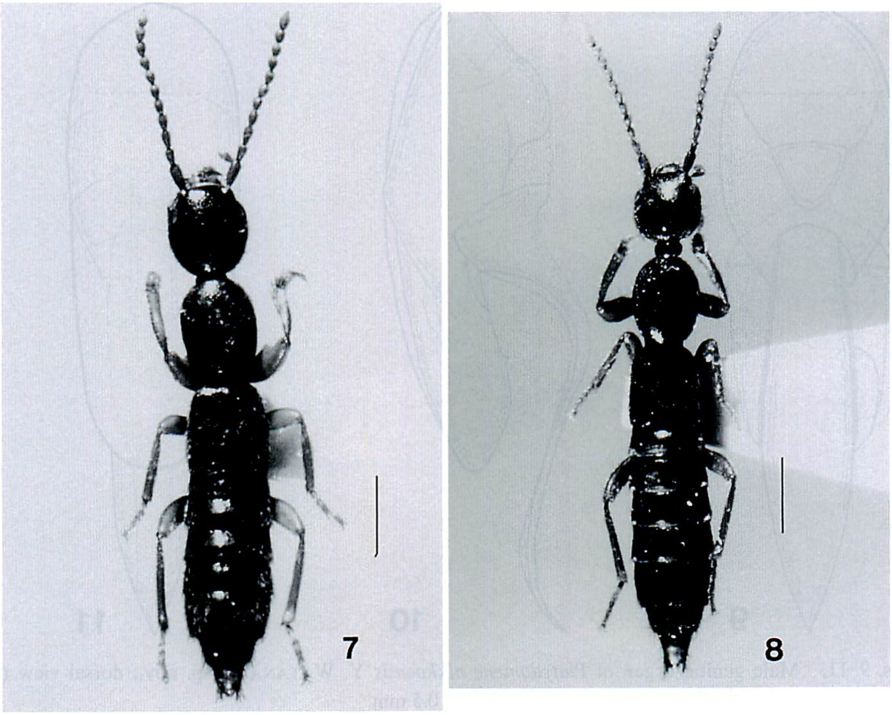
[Japanese name: Nikkô-dôgane-nagahanekakushi]

(Figs. 7, 9–11)

Body length: 6.4–8.2 mm (from front margin of head to anal end); 3.6–3.8 mm (from front margin of head to elytral apices).

Male and female. Similar in general appearance to the three preceding species, but easily distinguished from them by the longer head and diffrent configuration of fused paramere of male genital organ.

Head longer than wide (length/width = 1.07), slightly more feebly convex at the vertexal area, and much more strongly narrowed posteriad than in *P. kojimai*; surface

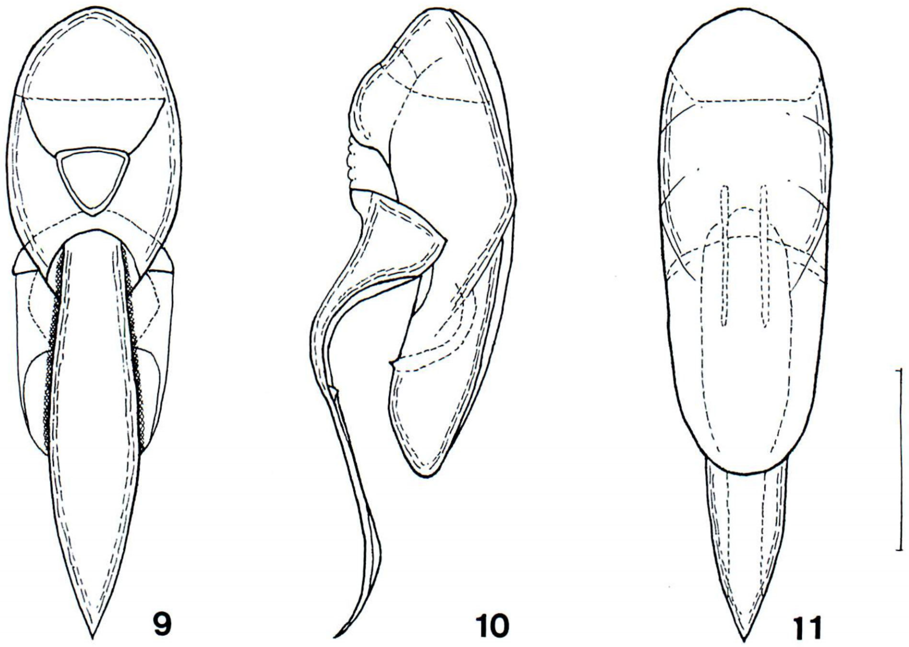


Figs. 7–8. Habitus of *Platydomene* spp.; *P. nikkoensis* Y. WATANABE, sp. nov., ♂ (7), and *P. hirogawarana* Y. WATANABE, sp. nov., ♂ (8). Scale: 1.0 mm.

more densely and more strongly punctured than in *P. kojimai*, the punctures becoming much denser and finer in latero-posterior parts as in *P. kojimai*. Antennae relatively long, extending a little beyond the middle of pronotum and similar in articulation to those of *P. kojimai*.

Pronotum less convex and slightly more strongly narrowed posteriad than in *P. kojimai*, distinctly longer than wide (length/width=1.22), somewhat longer (pronotum/head=1.09) but a little narrower (pronotum/head=0.95) than head; surface densely and more coarsely punctured than in *P. kojimai*, sometimes provided with an narrow obscure smooth space at the middle. Scutellum subtriangular and somewhat convex, surface provided with a few minute setiferous punctures. Legs similar in structure to those of *P. kojimai*. Elytra subtrapezoidal and somewhat dilated as in *P. kojimai*, distinctly longer than wide (length/width=1.09), slightly shorter (elytra/pronotum=0.96) but somewhat wider (elytra/pronotum=1.07) than pronotum, posterior margin emarginate at the middle as in *P. kojimai*; surface less coarsely and more roughly punctured than in *P. kojimai*. Hind wings degenerated to minute lobes which are two-thirds as long as elytra. Legs moderately long and similar in structure to those of *P. kojimai*.

Abdomen elongate, gradually dilated towards 7th segment, and then abruptly



Figs. 9–11. Male genital organ of *Platydomene nikkoensis* Y. WATANABE, sp. nov.; dorsal view (9), lateral view (10), and ventral view (11). Scale: 0.5 mm.

narrowed apicad; each tergite slightly less closely punctured than in *P. kojimai*; 8th sternite in the male shallowly and semicircularly excised at the middle of posterior margin and provided with a spindle-shaped and deeper depression before the excision than that of *P. kojimai,* bottom of the depression glabrous in anterior half though asperate in posterior half; in female, 8th sternite narrowed towards the broadly rounded apex.

Male genital organ similar in configuration to that of *P. kojimai*, but somewhat different from it in the following points: median lobe elliptical, widest at basal third and more strongly narrowed apicad than basad as seen from ventral side; fused paramere evidently narrower and much longer than median lobe, gently dilated apicad in basal two-thirds and strongly narrowed towards the pointed apex as seen from dorsal side.

Type series. Holotype: ♂, allotype: ♀, Pass Konsei-tôge, Gunma Pref., Honshu, Japan, 26–VIII–1964, Y. WATANABE leg. Paratypes: 7 ♂♂, 5 ♀♀, same data as for the holotype; 1 ♂, same locality and collector as above, 13–VIII–1980; 4 ♂♂, 10 ♀♀, near Sugenuma, Gunma Pref., Honshu, Japan, 25–VIII–1964, Y. WATANABE leg.; 1 ♀, same locality and collector as above, 13–VIII–1980; 7 ♂♂, 4 ♀♀, near Marunuma, Gunma Pref., Honshu, Japan, 7–IX–1965, Y. WATANABE leg.; 2 ♂♂, near Miike-goya, Fukushima Pref., Honshu, Japan, 27–VIII–1966, Y. WATANABE leg.; 1 ♂, 1 ♀, Nanairi, Aizu, Fukushima Pref., Honshu, Japan, 24–VI–1990, Y. WATANABE leg., 1 ♀, same locality and collector as above, 14–VII–1967.

Distribution. Japan (central Honshu).

Bionomics. All the type specimens were obtained by sifting dead leaves accumulated in deciduous broadleaved forests at five different localities at an altitude of 1,400–2,000 m.

Etymology. The specific epithet of this new species is given after "Nikkô", in which lie the three known localities.

Playdomene hirogawarana Y. WATANABE, sp. nov.

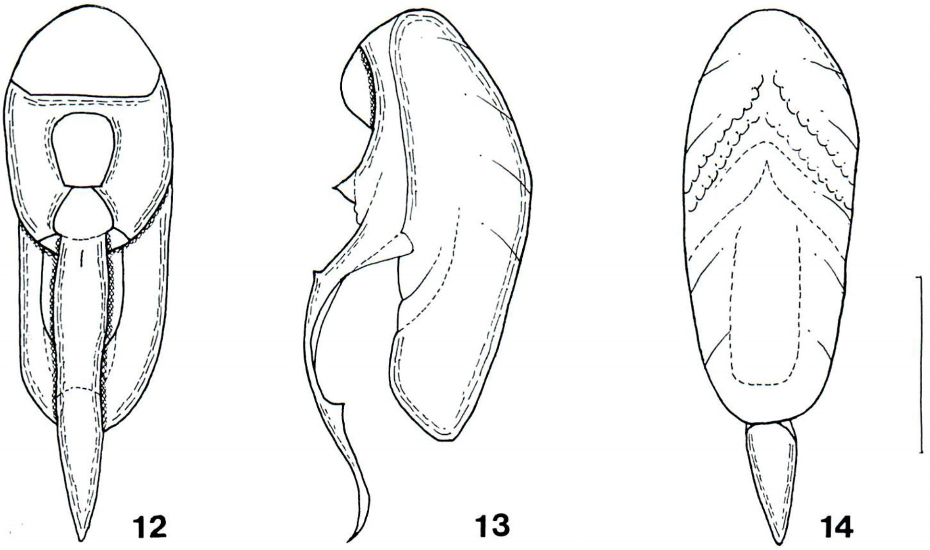
[Japanese name: Hirogawara-dôgane-nagahanekakushi]

(Figs. 8, 12–14)

Body length: 6.5–7.4 mm (from front margin of head to anal end); 3.5–3.6 mm (from front margin of head to elytral apices).

Male and female. Resembling the four preceding species in both facies and colour, but distinctly different from them in much narrower fused paramere of the male genital organ.

Head gently convex on vertex as in *P. nikkoensis*, as long as or slightly longer than wide (length/width = 1.02), widest at the middle and more strongly narrowed posteriad than anteriad, though less narrowed posteriad than in *P. nikkoensis;* lateral sides more strongly arcuate than in *P. nikkoensis*; postocular part shorter than in *P. nikkoensis* (postocular part/longitudinal diameter of eye = 2.40); surface densely covered with slightly less coarse punctures than those of *P. nikkoensis*, the punctures becoming much denser and finer in latero-posterior parts as in *P. nikkoensis*. Antennae relatively long,



Figs. 12–14. Male genital organ of *Platydomene hirogawarana* Y. WATANABE, sp. nov.; dorsal view (12), lateral view (13), and ventral view (14). Scale: 0.5 mm.

extending a little beyond the middle of pronotum, similar in articulation to *P. nikkoensis*.

Pronotum gently convex above and narrowed posteriad as in *P. nikkoensis*, apparently longer than wide (length/width = 1.25), distinctly longer (pronotum/head = 1.19) though as wide as or just slightly narrower (pronotum/head = 0.98) than head; lateral sides almost straight except near rounded anterior and posterior angles as seen from above; surface slightly more sparingly and less coarsely punctured than in *P. nikkoensis*. Scutellum subtringular, surface similar to that of *P. nikkoensis*. Legs similar in structure to those of *P. nikkoensis*. Elytra subtrapezoidal and slightly dilated posteriad, a little longer than wide (length/width = 1.09), somewhat shorter (elytra/pronotum = 0.92) but slightly wider (elytra/pronotum = 1.05) than pronotum, posterior angles rounded and posterior margin emarginate at the middle as in *P. nikkoensis*; surface more roughly and more obscurely punctured than in *P. nikkoensis*. Hind wings reduced as in the preceding species though as long as elytra in length.

Abdomen elongate, gradually widened towards 7th segment as in *P. nikkoensis*; each tergite slightly more densely and slightly more coarsely punctured than in *P. nikkoensis*; 8th sternite in the male subtriangularly excised at the middle of posterior margin as in *P. nikkoensis*, though the spindle-shaped depression before the excision is shallower than that of *P. nikkoensis*, bottom of the depression finely asperate except for smooth area in apical fourth; in female, 8th sternite narrowed towards the apex which is subtruncate.

Male genital organ elliptical and slightly asymmetrical. Median lobe similar in configuration to that of *P. nikkoensis*. Fused paramere elongate, more similar in configuratin to that of *P. kojimai* than to those of other preceding species, somewhat constricted near the middle and narrowed in apical third towards the bluntly pointed apex as seen from dorsal side, provided with a small subtriangular projection at apical third on the ventral side and with a minute spine at basal third on the dorsal side.

Type series. Holotype: ♂, allotype: ♀, Hirogawara, Yamanashi Pref., Honshu, Japan, 6–VI–1964, Y. WATANABE leg. Paratypes: 26 ♂♂, 14 ♀♀, same data as for the holotype, 6 ♂♂, 5 ♀♀, same locality and collector as above, 11–VI–1966.

Distribution. Japan (central Honshu).

Bionomics. All the type specimens were obtained by sifting dead leaves accumulated in deciduous broadleaved forests at the foot of Mt. Kita-dake at an altitude of about 1,550 m.

Etymology. The specific epithet of the present new species is derived from the type locality “Hirogawara”.

要　約

渡辺泰明：本州中央部の山地帯で採集された短翅ナガハネカクシ類（甲虫目ハネカクシ科）について．―― ドウガネナガハネカクシ *P. nobilis* は，北アルプスからの採集個体に基づき澤田高平によって記載された後翅が退化した特徴的な種である．私は手許のハネカクシ類を検討してい

る過程で，本州中部の山地帯で採集された，この種に近縁のいくつかの種を見出した．これらを詳細に検討した結果，5種に識別され，そのうちの北アルプス産の個体は上記のドウガネナガハネカクシに同定された．残りの白山，茶臼岳，日光および北岳山麓の広河原で採集された個体は，それぞれ雄交尾器に若干の形態的差異が認められ未記載種と判定されたので，ハクサンドウガネナガハネカクシ *Platydomene hakusana*，コジマドウガネナガハネカクシ *P. kojimai*，ニッコウドウガネナガハネカクシ *P. nikkoensis* およびヒロガワラドウガネナガハネカクシ *P. hirogawarana* と命名・記載した．

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Elytra, Tokyo, **36**(2): 341–342, November 22, 2008

New Distributional Records of *Micropodabrus maculivertex* (Coleoptera, Cantharidae)

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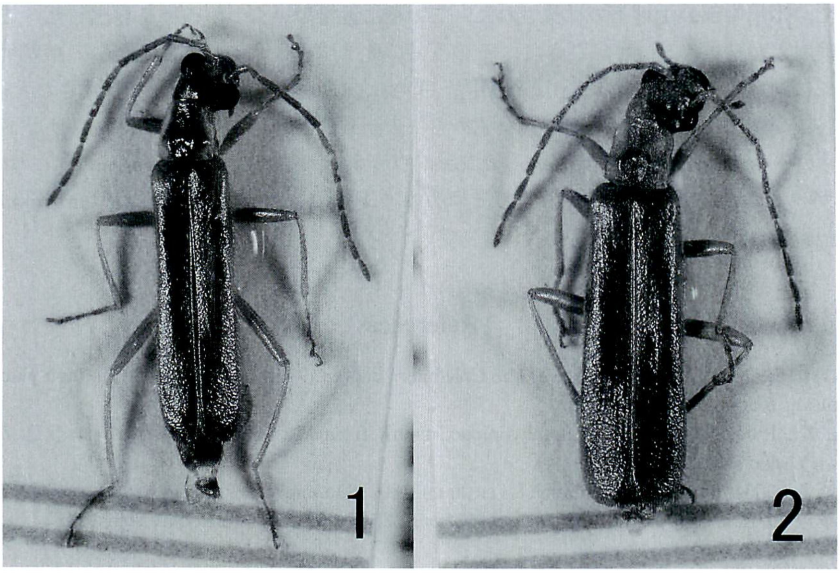
Micropodabrus maculivertex ISHIDA, 1989, was described from Okinawa-hontô Island of the Ryukyu Islands. IMASAKA (1992) additionally recorded this species from Amami-ôshima Island and Toku-no-shima Island of the middle Ryukyu Islands. In this short report, we will record it for the first time from Kume-jima and Tokashiki-jima lying nearby Okinawa-hontô. The collecting data are as given below.

Micropodabrus maculivertex ISHIDA, 1989

(Figs. 1–2)

Micropodabrus maculivertex ISHIDA, 1989, Ent. Rev. Japan, Osaka, **44**: 82, figs. 1, 3 a, 4 a. —— IMASAKA, 1992, Coleopterists' News, Tokyo, (100): 30. —— KIRIYAMA & KINODA, 2000, Tatehamodoki, Miyazaki, (36): 4, figs. 13 A, 13 C–D.



Figs. 1–2. *Micropodabrus maculivertex* ISHIDA, from Kume-jima Is., Ryukyus; 1, male; 2, female.

Specimens examined. Kume-jima, Ryukyus: 1 ♀, Daruma-yama, 9–IV–1990, T. UENO leg. (KURA); 2 ♂♂, 1 ♀, Uézu, 14–IV–1995, N. TAKAHASHI leg. (NTC); 1♂, Uézu (at light), 14–IV–1995, N. TAKAHASHI leg. (NTC); 2 ♂♂, Daruma-yama – Ô-dake, 15–IV–1995, N. TAKAHASHI leg. (NTC); 5 ♂♂, 1 ♀, near Âra-dake, 4–IV–1996, Y. OKUSHIMA leg. (KURA); 2 ♂♂, 5 ♀♀, near Daruma-yama, 5–IV–1996, Y. OKUSHIMA leg. (KURA); 2 ♂♂, 2 ♀♀, near Daruma-yama, 7–IV–1996, Y. OKUSHIMA leg. (KURA). Tokashiki-jima, Ryukyus: 1 ♀, upper course of the Tokashiki-gawa, 26～27–II–2004, F. SATOU leg. (KURA).

Depository of the specimens examined. The specimens recorded above are preserved in the Kurashiki Museum of Natural History (KURA) and in the collection of N. TAKAHASHI (NTC).

Distribution. Ryukyus: Amami-ôshima, Toku-no-shima, Okinawa-hontô, Kume-jima (new record), Tokashiki-jima (new record).

Notes. The blackish markings on the vertex and pronotum tend to become pale-coloured in individuals from Kume-jima Island.

We wish to express our hearty thanks to Dr. Shun-Ichi UÉNO for his critical reading of the manuscript, and Messrs. Teruhisa UENO and Fumiyasu SATOU for their kind support of valuable materials.

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Elytra, Tokyo, **36**(2): 343–348, November 22, 2008

New Records of the Supralittoral Species of the Genus *Cercyon* (Coleoptera, Hydrophilidae) from the Peripheral Islands off Hokkaido, Japan

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Abstract Six supralittoral species of the genus *Cercyon* (*Cercyon*), *C.* (*C.*) *aptus*, *C.* (*C.*) *algarum*, *C.* (*C.*) *dux*, *C.* (*C.*) *numerosus*, *C.* (*C.*) *setulosus*, and *C.* (*C.*) *symbion*, are recorded for the first time from the peripheral Islands off Hokkaido, Japan.

Terrestrial hydrophilid beetles from Eastern Asia are rather poorly known. Despite the recent works by Shatrovskiy (1989, 1992) and Ôhara & Jia (2006), their distribution in the region remains unsatisfactorily studied. Under a series of taxonomic studies on the supralittoral species of the genus *Cercyon*, I have had the opportunity to examine specimens housed in the collection of the Systematic Entomology, Hokkaido University Museum, and also to collect them myself from under sea weed on the shore line of the peripheral islands off Hokkaido, Japan. The islands in question are Rebun-tô, Rishiri-tô, Teuri-tô, Yagishiri-tô, Okushiri-tô and Daikoku-jima Islands (Fig. 1). Six species, *Cercyon* (*Cercyon*) *aptus*, *C.* (*C.*) *algarum*, *C.* (*C.*) *dux*, *C.* (*C.*) *numerosus*, *C.* (*C.*) *setulosus* and *C.* (*C.*) *symbion* are newly recorded from the islands, and their records are presented herein.

Collecting data. Locality (Fig. 1) — Japan: off Hokkaido. Beach profile — SA: sandy beach. SH: shingle beach. CO: cobble beach.

[Rishiri-tô] RI-94-MO-001/CO: Fujino (45°15′17″N 141°12′07″E), Kutsugata, 26–VII–1994, M. Ôhara leg., under sea weed. RI-94-MO-002/SA: Kanesaki (45°08′01″N 141°18′27″E), Oniwaki, 28–VII–1994, M. Ôhara leg., under sea weed on sandy beach.

[Rebun-tô] RE-94-MO-005/SA: Ôsawa (45°25′59″N 141°00′49″E), Funadomari, 27–VII–1994, M. Ôhara leg., under sea weed on sandy beach.

[Teuri-tô] TE-08-MO-006/SH: Maehama (44°25′55″N 141°20′08″E), 14–VI–2008, M. Ôhara leg., under sea weed. TE-08-MO-007/SH-CO: Aikage (44°25′07″N 141°19′16″E), 15–VI–2008, M. Ôhara leg., under sea weed.

[Yagishiri-tô] YA-08-MO-010/SH: Yagishiri (44°26′02″N 141°25′41″E), 16–VI–2008, M. Ôhara leg., under sea weed.

[Okushiri-tô] OK-08-MO-014/SH-CO: Okushiri (42°10′ 12″N 139°31′ 00″E), 12–VII–2008, M. ÔHARA leg., under sea weed. OK-08-MO-015/SA: Tomisato (42°04′ 18″ N 139°28′ 17″E), 13–VII–2008, M. ÔHARA leg., under sea weed. OK-08-MO-016/SA-SH: Monai (42°06′ 00″N 133°25′ 30″E), 13–VII–2008, M. ÔHARA leg., under sea weed. OK-08-MO-018/SA: Yamase-domari (42°12′ 03″N 139°32′ 24″E), 13–VII–2008, M. ÔHARA leg., under sea weed on sandy beach.

[Daikoku-jima] DA-05-MO-001/SH-CO: 42°57.39′ N 144°52.11′ E, 12–VII–2005, M. ÔHARA leg. DA-05-MO-005/SH-CO: 42°57.39′ N 144°52.11′ E, 12–VII–2005, M. ÔHARA leg. DA-05-MO-006/SH: 42°57.59′ N 144°52.28′ E, 12–VII–2005, M. ÔHARA leg. DA-05-MO-007/SA: 42°57.75′ N 144°52.34′ E, 13–VII–2005, M. ÔHARA leg. DA-05-MO-009/SH-CO: 42°57.39′ N 144°52.11′ E, 30–VII–2005, M. ÔHARA leg., from under sea weed. DA-08-MO-025/SA: 42°57′ 47″N 144°52′ 20″E, 13–VIII–2008, M. ÔHARA leg., from under sea weed (*Laminaria, Sarrugasum*) and eel grass (*Zostera*).

Cercyon (*Cercyon*) *algarum* SHARP, 1873

Cercyon algarum SHARP, 1873, 65 [Japan: Kyushu (Nagasaki: Amakusa)]. —— SATÔ, 1989, 242 [Hokkaido, Honshu, Izu Islands (Hachijô-jima), Kyushu]. —— SHATROVSKIY, 1989, 281.
Cercyon (*Cyceron*) *algarum*: SHATROVSKIY, 1992, 366 [Kunashir].
Cercyon (*Cercyon*) *algarum*: HANSEN, 1999, 275.

Specimens examined. RI-94-MO-001/CO (14 exs.); RI-94-MO-002/SA (1 ex.); TE-08-MO-006/SH (2 exs.); TE-08-MO-007/SH-CO (22 exs.); YA-08-MO-010/SH (24 exs.); OK-08-MO-015/SA (11 exs.); OK-08-MO-016/SA-SH (19 exs.); DA-08-MO-025/SA (9 exs.).

Distribution. Japan (Hokkaido: proper, Rishiri-tô, Teuri-tô, Yagishiri-tô, Okushiri-tô, Daikoku-jima; Honshu; Shikoku; Izu Isls.: Hachijô-jima; Kyushu). Kuril Islands (Kunashir). New to Rishiri-tô, Teuri-tô, Yagishiri-tô, Okushiri-tô and Daikoku-jima.

Cercyon (*Cercyon*) *aptus* SHARP, 1873

Cercyon aptus SHARP, 1873, 65 [Japan: Honshu and Kyushu]. —— SATÔ, 1989, 242 [Shikoku]. —— KILS, 1999, 177 [Hokkaido].
Cercyon (*Cercyon*) *aptus*: ÔHARA & JIA, 2006, 131.

Specimens examined. RI-94-MO-002/SA (1 ex.); RE-94-MO-005/SA (14 exs.); OK-08-MO-018/SA (25 exs.); DA-08-MO-025/SA (10 exs.).

Distribution. Japan (Hokkaido: proper, Rishiri-tô, Rebun-tô, Okushiri-tô, Daikoku-jima; Honshu; Shikoku; Kyushu). Kuril Islands (Kunashir, Itrup, Urup, Chirpoi). New to Rishiri-tô, Rebun-tô, Okushiri-tô and Daikoku-jima.

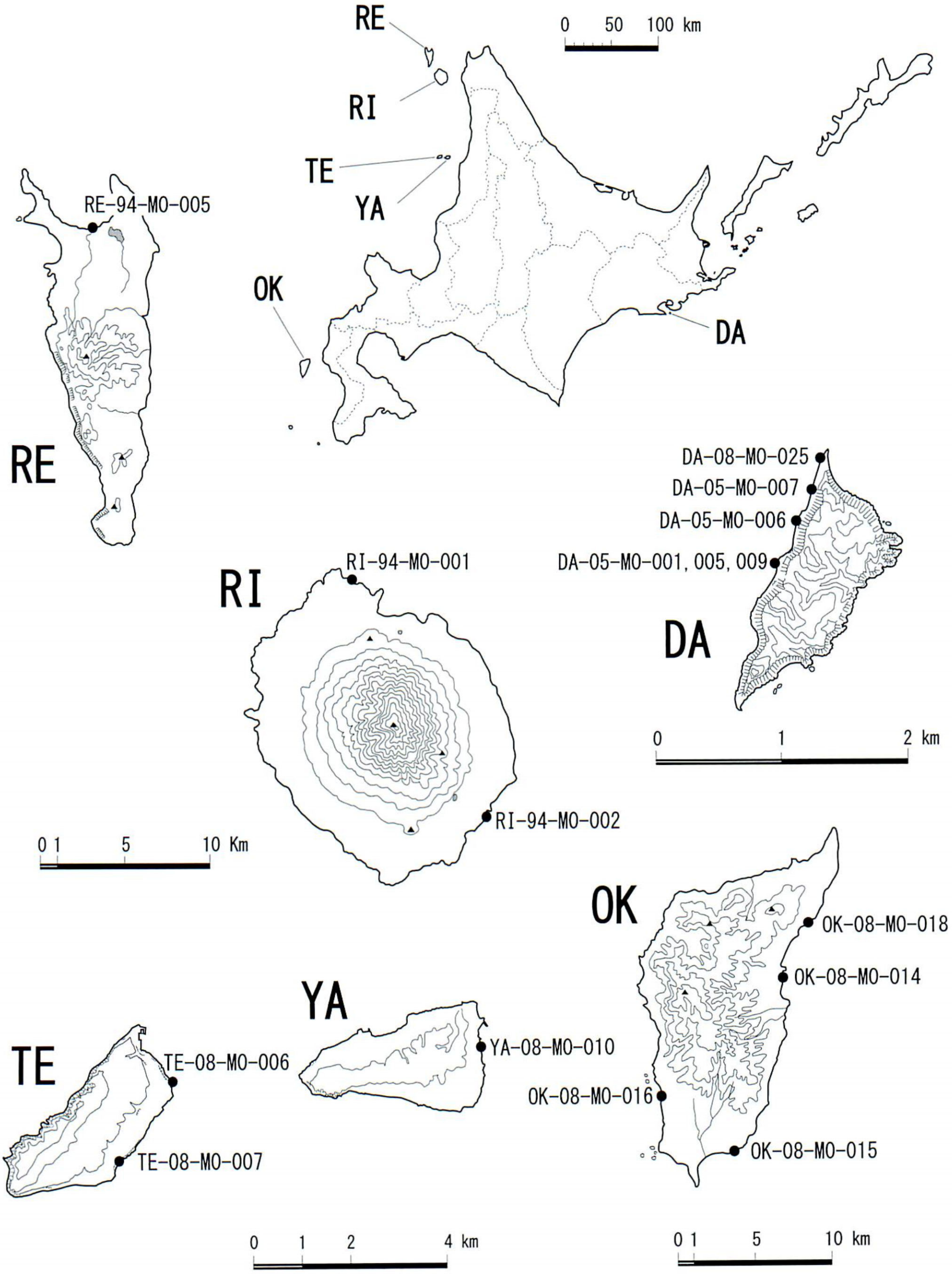

Fig. 1. Map showing the collecting sites on the peripheral islands off Hokkaido, Japan. —— RI: Rishiri-tô; RE: Rebun-tô; TE: Teuri-tô; YA: Yagishiri-tô; OK: Okushiri-tô; DA: Daikoku-jima.

Table 1. Distribution of the supralittoral species of the genus *Cercyon* from the peripheral islands off Hokkadio, Japan. The species are ordered alphabetically.

	RI	RE	TE	YA	OK	DA
Cercyon (*Cercyon*) *algarum*	●		●	●	●	●
C. (*C.*) *aptus*	●	●			●	●
C. (*C.*) *dux*	●	●	●	●	●	●
C. (*C.*) *numerosus*	●				●	●
C. (*C.*) *setulosus*	●		●	●		●
C. (*C.*) *symbion*	●					●

RI: Rishiri-tô [利尻島]; RE: Rebun-tô [礼文島]; TE: Teuri-tô [天売島]; YA: Yagishiri-tô [焼尻島]; OK: Okushiri-tô [奥尻島]; DA: Daikoku-jima [大黒島].

Cercyon (*Cercyon*) *dux* Sharp, 1873

Cercyon dux Sharp, 1873, 65 [Japan: Kyushu (Nagasaki: Amakusa)]. —— Satô, 1981, 213 [Hokkaido, Honshu, Shikoku, Kyushu]; 1989, 243 [Kyushu: Oki-no-shima].
Cercyon (*Cyceron*) *dux*: Shatrovskiy, 1992, 366.
Cercyon (*Cercyon*) *dux*: Hansen, 1999, 278.

Specimens examined. RI-94-MO-001/CO (2 exs.); RI-94-MO-002/SA (1 ex.); RE-94-MO-005/SA (2 exs.); 1 ex., Rebun Is., 22–VI–1996, S. Akimoto, under sea weed; TE-08-MO-006/SH (5 exs.); TE-08-MO-007/SH-CO (23 exs.); YA-08-MO-010/SH (3 exs.); OK-08-MO-014/SH-CO (3 exs); OK-08-MO-015/SA (16 males and 17 females); OK-08-MO-016/SA-SH (4 males and 4 females); DA-05-MO-001/SH-CO (4 males and 2 females); DA-05-MO-005/SH-CO (3 males); DA-08-MO-025/SA (2 males and 1 female); Daikoku-jima, 30–VII–2005, T. Ito (1 male and 1 female).

Distribution. Japan (Hokkaido: proper, Rishiri-tô, Rebun-tô, Teuri-tô, Yagishiri-tô, Okushiri-tô, Daikoku-jima; Honshu; Shikoku; Izu Isls.: Hachijô-jima; Kyushu: proper, Oki-no-shima). Southern Kurils (?). New to Rishiri-tô, Rebun-tô, Teuri-tô, Yagishiri-tô, Okushiri-tô and Daikoku-jima.

Cercyon (*Cercyon*) *numerosus* Shatrovskiy, 1989

Cercyon numerosus: KILS, 1999, 177 [Hokkaido].
Cercyon (*Cercyon*) *numerosus*: Ôhara & Jia, 2006, 134.

Specimens examined. RI-94-MO-002/SA (5 males); OK-08-MO-014/SH-CO (4 males); DA-05-MO-001/SH-CO (2 males); DA-05-MO-006/SH (2 males); DA-05-MO-009/SH-CO (2 males).

Distribution. Japan (Hokkaido: proper, Rishiri-tô, Okushiri-tô and Daikoku-jima; Kyushu); Kuril Islands (Urup, Chirpoi, Simushir); Russian Fed. (Far East). New to Rishiri-tô, Okushiri-tô and Daikoku-jima.

Cercyon (*Cercyon*) *setulosus* Sharp, 1884

Cercyon setulosus Sharp, 1884, 458 [Japan]. —— Satô, 1989, 243 [Hokkaido, Honshu, Tsushima Islands].
Cercyon (*Cercyon*) *setulosus*: Ôhara & Jia, 2006, 139.

Specimens examined. RI-94-MO-001/CO (8 exs.); RI-94-MO-002/SA (10 exs.); TE-08-MO-007/SH-CO (1 ex.); YA-08-MO-010/SH (20 exs.); DA-05-MO-001/SH-CO (4 exs.); DA-05-MO-005/SH-CO (29 exs. and 1 male); DA-05-MO-006/SH (2 exs.); DA-05-MO-007/SA (1 ex.); DA-05-MO-009/SH-CO (1 ex.); DA-08-MO-025/SA (8 exs.).

Distribution. Japan (Hokkaido: proper, Rishiri-tô, Teuri-tô, Yagishiri-tô, Daikoku-jima; Honshu; Tsushima Isls.). Russian Fed. (Far East: Primorsky Kray). Kuril Islands (Shikotan, Kunashir, Urup, Ekarma). New to Rishiri-tô, Teuri-tô, Yagishiri-tô and Daikoku-jima.

Cercyon (*Cercyon*) *symbion* Shatrovskiy, 1989

Cercyon symbion: KILS, 1999, 177 [Hokkaido].
Cercyon (*Cercyon*) *symbion*: Ôhara & Jia, 2006, 140.

Specimens examined. RI-94-MO-002/SA (2 males); DA-05-MO-001/SH-CO (1 male); DA-05-MO-005/SH-CO (5 males).

Distribution. Japan (Hokkaido: proper, Rishiri-tô, Daikoku-jima; Kyushu). Kuril Islands (Shikotan, Kunashir, Itrup, Urup, Alaid, Kharimkotan, Paramushir, Shumushu). Russian Fed. (Primorskiy Kray, Sakhalin). New to Rishiri-tô and Daikoku-jima.

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I wish to express my hearty thanks to Mr. T. Lackner (The Hokkaido University Museum: HUM) for the grammatical revision of the manuscript. I am also indebted to Director, Prof. S. F. Mawatari (HUM) for financial support (MEXT/JSPS Grant-in-Aid for Scientific Research (A), No. 16207005), Ms. Mari Tanaka (Otaru) for providing the map for this paper, Dr. H. Mukai (Akkeshi Marine Biological Station, Hokkaido University), Mr. M. Satô (Rishiri Town Museum), Ms. M. Furuta, Mr. N. Inari and Ms. H. Yamamoto for their kind assistance to my fieldwork in the Islands.

要　　約

大原昌宏：北海道周辺の島々における海浜性ケシガムシ属（鞘翅目，ガムシ科）の分布記録.
—— 北海道周辺の利尻島，礼文島，天売島，焼尻島，奥尻島，大黒島を調査し，海浜性ケシガムシ属 *Cercyon* の6種，コケシガムシ *Cercyon* (*Cercyon*) *aptus*，ヒメケシガムシ *C.* (*C.*) *algarum*，フチトリケシガムシ *C.* (*C.*) *dux*，エゾケシガムシ *C.* (*C.*) *numerosus*，ナガケシガムシ *C.* (*C.*) *setu-*

losus, キタケシガムシ *C.* (*C.*) *symbion* について，島別の分布を記録した．

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Elytra, Tokyo, **36**(2): 349–355, November 22, 2008

A New *Paranchodemus* (Coleoptera, Carabidae) from Central Japan

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Abstract A new platynine carabid beetle is described from the Chûbu District, Central Japan, under the name of *Paranchodemus ishiguroi*. It is related to *P. calleides* (Bates), but differs from it mainly in the coloration and the shape of pronotum.

Paranchodemus (Habu, 1978) was erected as a subgenus of the genus *Anchodemus* for *A. calleides* Bates (1883, p. 256). Later, Liebheer (1989) studied the type specimen, mainly the female genitalia and regarded Habu's subgenus as an independent genus. At the same time, he added one new species from China.

In 1998, Morvan erected the genus *Kenserzh* for a Tibetan species, *K. thibetanus*, and added its new subspecies, *K. t. sichuanensis*. However, this genus was a junior synonym of the genus *Paranchodemus* (Bousquet, 2003). Up to the present, three species and one subspecies of the genus *Paranchodemus* have been known from East Asia (Bousquet, 2003).

In this paper, we are going to describe a new species as a fourth representative of the genus.

The abbreviations used herein are as follows: L – body length, measured from apical margin of clypeus to apices of elytra; HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the mid-line; PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; FL – length of metafemur; ML – length of metatrochanter; TL – length of metatarsus; TLI – length of segment 1 of metatarsus; TLV – length of claw segment of metatarsus; M – arithmetic mean; NSMT – National Museum of Nature and Science, Tokyo.

Before going further, we wish to express our deep gratitude to the following friends for supplying us with important material: Dr. Yoshiro KUROSA, Messrs. Masaki ISHIGURO and Kentarou TOYOSHIMA.

Paranchodemus ishiguroi MORITA, TODA et KANIE, sp. nov.

[Japanese name: Hakusan-ruri-hirata-gomimushi]

(Figs. 1–17)

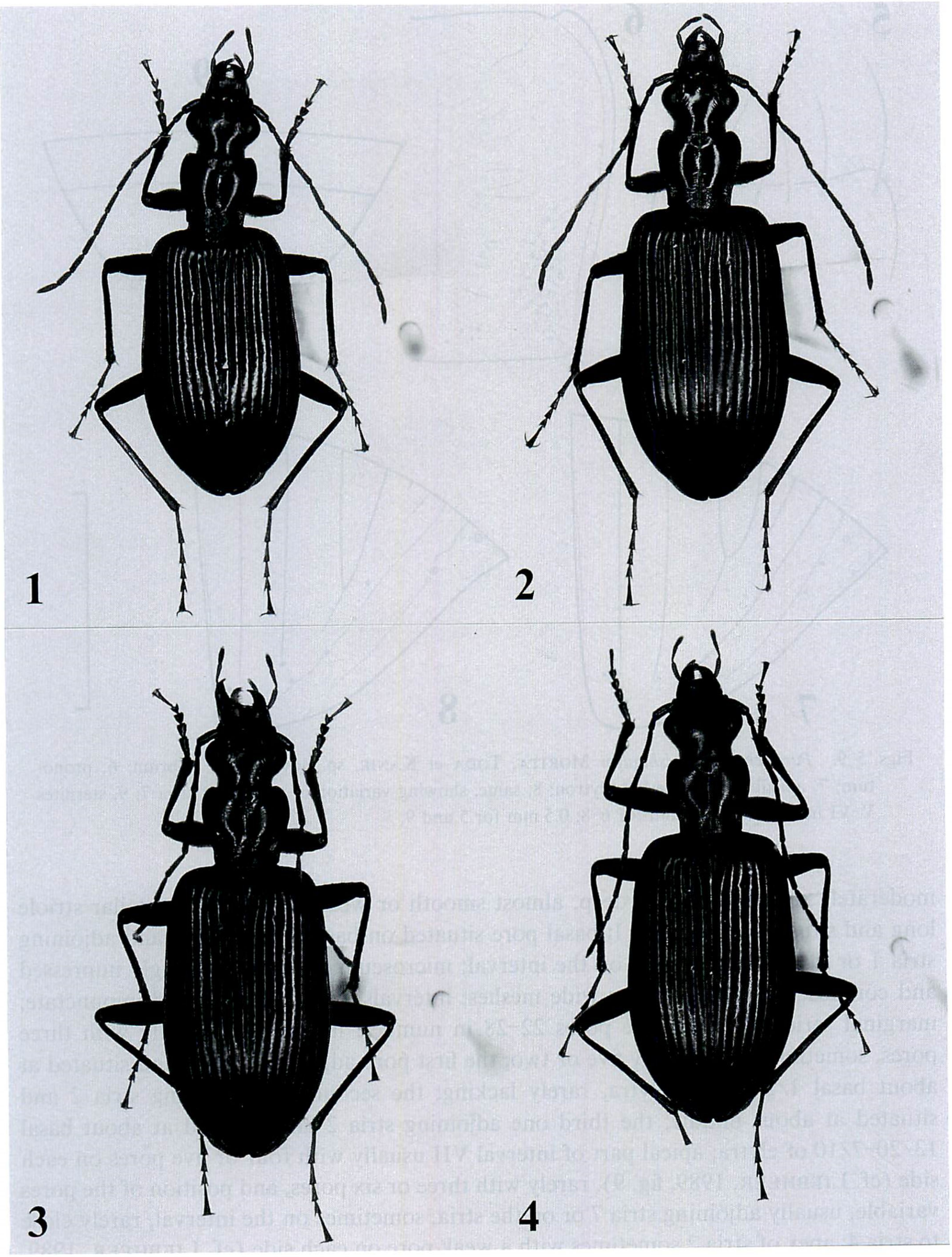
Diagnosis. Body of moderate size; dorsal side usually with brilliant blue lustre; sides of pronotum weakly arcuate in front, and convergent posteriad or weakly sinuate before hind angles; basal part of elytra wide.

Description. L: 8.71–11.43 mm. Body of moderate size, black; head and pronotum with greenish, purplish or brilliant bluish lustre; elytra with brilliant bluish or greenish lustre, rarely with purplish lustre; ventral side black with weak bluish lustre; coxae blackish brown; appendages black.

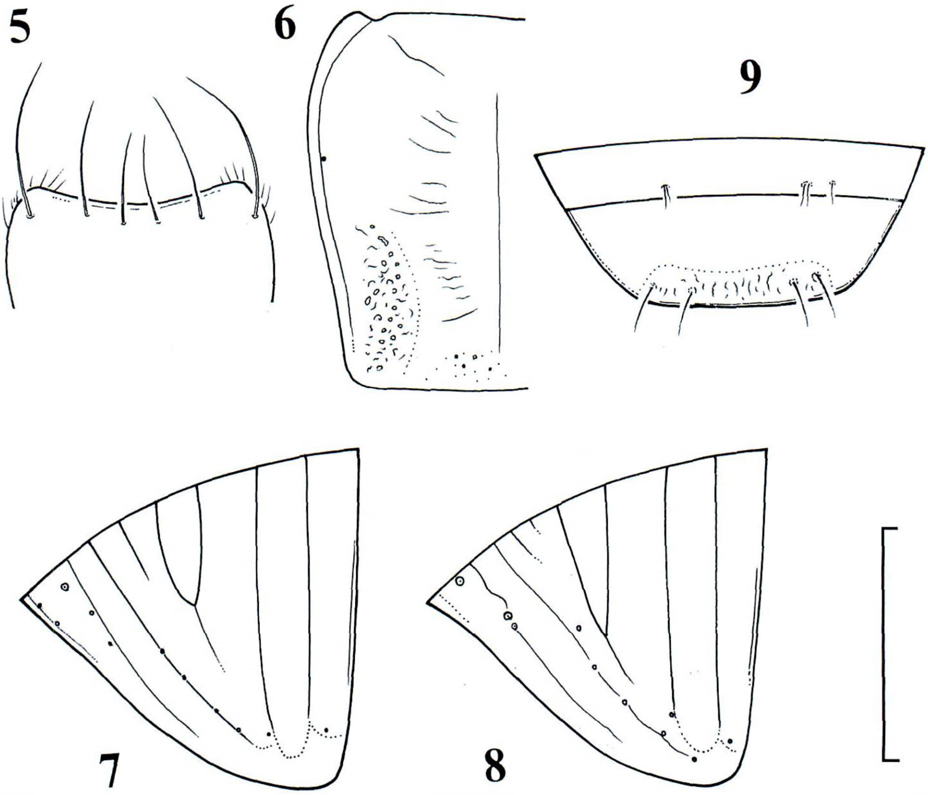
Head moderately convex; eyes large and convex; frontal furrows deep, almost parallel from clypeal seta to clypeal suture, and then divergent posteriad and reaching the level of basal 5/6 of eye; microsculpture not sharply impressed though consisting of isodiametric meshes; genae oblique; mentum tooth wide and weakly bifid at the tip; apex of labrum weakly to moderately emarginate; antennae filiform, reaching the middle of elytra or a little before that level; relative lengths of antennal segments as follows: —— I : II : III : IV : V : VI : XI ≒ 1 : 0.63 : 1.64 : 1.47 : 1.41 : 1.27 : 1.08.

Pronotum narrow, weakly convex and widest at about apical 2/7; sides widely and weakly arcuate in front, gradually convergent towards hind angles or very weakly sinuate at basal 2/7; apical angles weakly produced and moderately rounded at the tips; apex almost straight; median line deep and not reaching apex nor base; anterior marginal setae situated at about basal 7/20; anterior transverse impression very shallow; basal foveae rather shallow, with several coarse punctures and irregular wrinkles, each extending anteriorly; hind angles right, and with obtusely rounded tips; PW/HW 1.01–1.10 (M 1.06) in ♂, 1.04–1.13 (M 1.09) in ♀, PW/PL 1.07–1.20 (M 1.15) in ♂, 1.10–1.20 (M 1.17) in ♀, PW/PA 1.29–1.39 (M 1.34) in ♂, 1.30–1.40 (M 1.35) in ♀, PW/PB 1.30–1.38 (M 1.34) in ♂, 1.30–1.42 (M 1.35) in ♀, PA/PB 0.97–1.03 (M 1.00) in ♂, 0.96–1.03 (M 1.00) in ♀; disc with fine transverse wrinkles; microsculpture consisting of fine transverse meshes.

Elytra elongate, moderately convex, and with wide basal part; EW/PW 1.93–2.03 (M 1.99) in ♂, 1.91–2.10 (M 2.01) in ♀, EL/EW 1.57–1.71 (M 1.65) in ♂, 1.55–1.74 (M 1.65) in ♀; shoulders prominent and rounded; sides almost straight in front, usually very weakly emarginate at about basal 7/20 of elytra, and then widely and weakly arcuate posteriad; preapical sinuation wide and shallow; apical parts narrow and

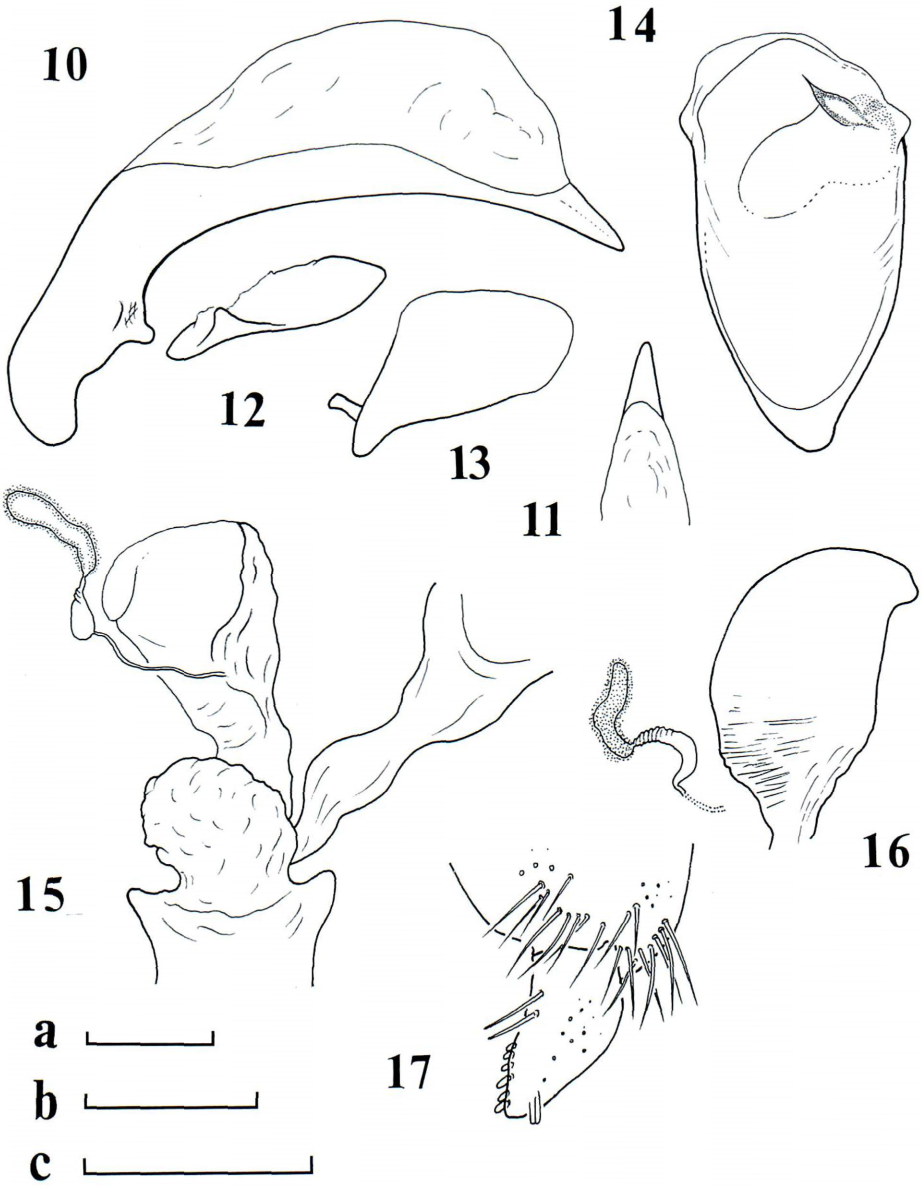


Figs. 1–4. *Paranchodemus ishiguroi* MORITA, TODA et KANIE, sp. nov., showing colour variation. —— 1, 3, 4, ♂; 2, ♀.



Figs. 5–9. *Paranchodemus ishiguroi* MORITA, TODA et KANIE, sp. nov. —— 5, Labrum; 6, pronotum; 7, apical part of the left elytron; 8, same, showing variation of pores and stria 7; 9, sternites V–VI in ♀. Scale: 1.0 mm for 6–8; 0.5 mm for 5 and 9.

moderately produced; striae deep, almost smooth or weakly punctate; scutellar striole long and situated on interval I; basal pore situated on base of interval I, and adjoining stria 1 or on the stria, rarely on the interval; microsculpture rather strongly impressed and composed of polygonal or wide meshes; intervals weakly convex and impunctate; marginal series of umbilicate pores 22–28 in number; interval III usually with three pores, sometimes four, rarely five or two; the first pore adjoining stria 3 and situated at about basal 1/5–1/3 of elytra, rarely lacking; the second one adjoining stria 2 and situated at about middle; the third one adjoining stria 2 and situated at about basal 13/20–7/10 of elytra; apical part of interval VII usually with four or five pores on each side (cf. LIEBHEER, 1989, fig. 9), rarely with three or six pores, and position of the pores variable, usually adjoining stria 7 or on the stria, sometimes on the interval, rarely close to stria 4; apex of stria 2 sometimes with a weak pore on each side (cf. LIEBHEER, 1989, fig. 10); stria 7 rarely rather clearly impressed towards the anastomosis of striae 1 and 2; apex of stria 1 with a weak pore on each side; elytral epipleuron gradually narrowed



Figs. 10–17. *Paranchodemus ishiguroi* MORITA, TODA et KANIE, sp. nov. —— 10, Aedeagus, left lateral view; 11, apical part of aedeagus, dorso-apical view; 12, right paramere, left lateral view; 13, left paramere, left lateral view; 14, genital segment, ventral view; 15, female reproductive tract, with folded apical part of spermatheca; 16, spermatheca and spermathecal gland in another specimen; 17, stylus. Scales: a, 0.5 mm for 15–17; b, 0.5 mm for 10–13; c, 1.0 mm for 14.

apicad; inner plica indistinct.

Sternites (I–V) usually with two or three short setae on each side, and rarely with one additional seta; anal sternite (VI) trapezoidal, bisetose in ♂, quadrisetose in ♀, apical half depressed, and with short and irregular wrinkles.

Legs long and slender; metatrochanter very short, usually with a seta; ML/FL 0.29–0.32 (M 0.30) in ♂, 0.29–0.33 (M 0.31) in ♀; metafemora each with three or four setae in ventral view, rarely two; two proximal segments of meso- and metatarsi each with inner and outer sulci; claw segments of meso- and metatarsi without setae on ventral side; segment 4 of meso- and metatarsi shallowly bilobed; TLI/TLV 0.95–1.13 (M 1.02) in ♂, 0.98–1.20 (M 1.06) in ♀.

Genital segment elongated ovate and with a very short handle.

Aedeagus of moderate size, and with thin basal part; basal orifice large; viewed laterally, aedeagus weakly arcuate; apical lobe narrowly produced and simply rounded at the tip in dorsal view; right paramere elongate and small; left paramere large and wide.

Spermatheca broad, with curved apex; spermathecal gland elongate and curved; apical styli wide, with two nematiform setae at apical pit-like depression (LIEBHEER, 1989, p. 6), with two long spines at basal part and six short spines at apical part.

Type series. Holotype: ♂ (NSMT), 14–VI–2008, S. MORITA leg. Paratypes: 1 ♀, 30–VII–2006, M. ISHIGURO leg.; 2 ♂♂, 1 ♀, 16–VIII–2006, M. ISHIGURO leg.; 1 ♀, 26–VIII–2006, K. TOYOSHIMA leg.; 4 ♂♂, 1 ♀, 2–IX–2006, K. TOYOSHIMA leg.; 11 ♂♂, 6 ♀♀, 11–VIII–2007, N. KANIE leg.; 14 ♂♂, 7 ♀♀, 12–VIII–2007, N. TODA leg.; 50 ♂♂, 27 ♀♀, 14–VI–2008, S. MORITA & N. TODA leg.; 14 ♂♂, 9 ♀♀, 28–VI–2008, N. TODA leg.; 9 ♂♂, 17 ♀♀, 26–VII–2008, N. TODA leg.

Locality. Riv. Ogamigô-gawa, Shôkawa-chô, Takayama-shi, Gifu Prefecture, Chûbu District, Central Japan.

Notes. The standard ratios of body parts shown in the descriptive part are those of ten males and ten females.

This new species is closely allied to *Paranchodemus calleides* (BATES, 1883, p. 256). It is, however, distinguished from the latter by the following points: 1) coloration of dorsal side; 2) shape of pronotum; and 3) wide elytral basal parts. [in 3 ♂♂ and 3 ♀♀ of *P. calleides* from Niigata Pref., PW/HW 1.07–1.09 (M 1.08) in ♂, 1.08–1.11 (M 1.09) in ♀; PW/PL 1.16–1.20 (M 1.18) in ♂, 1.16–1.21 (M 1.19) in ♀; PW/PA 1.32–1.38 (M 1.36) in ♂, 1.33–1.37 (M 1.35) in ♀; PW/PB 1.30–1.35 (M 1.33) in ♂, 1.28–1.36 (M 1.31) in ♀; PA/PB 0.95–1.03 (M 0.98) in ♂, 0.95–1.00 (M 0.98) in ♀; EW/PW 1.88–1.98 (M 1.93) in ♂, 1.93–2.00 (M 1.96) in ♀; EL/EW 1.64–1.76 (M 1.69) in ♂, 1.63–1.71 (M 1.67) in ♀; TLI/TLV 1.06–1.24 (M 1.13) in ♂, 1.08–1.12 (M 1.04) in ♀; ML/FL 0.32–0.33 (M 0.32) in ♂, 0.31–0.32 (M 0.32) in ♀; TL/HW 1.33–1.36 (M 1.35) in ♂, 1.28–1.36 (M 1.31) in ♀; relative lengths of antennal segments as follows: —I : II : III : IV ≒ 1 : 0.54 : 1.55 : 1.31.]

要　約

森田誠司・戸田尚希・蟹江　昇：中部地方から採集されたヒラタゴミムシの 1 新種．—— 岐阜県から採集された標本を基に，ハクサンルリヒラタゴミムシ *Paranchodemus ishiguroi* MORITA, TODA et KANIE を記載した．本種は，中部～東北地方から知られるオオアオグロヒラタゴミムシ *P. calleides* (BATES) に近縁であるが，背面につよい青色ないし緑青光沢をもつことのほか，前胸背板の形，幅広い上翅の基部などの外部形態から，容易に識別される．

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Elytra, *Tokyo*, **36**(2): 355–356, November 22, 2008

Description of the Male of *Onthophagus* (*Indachorius*) *cheyi* OCHI et KON (Coleoptera, Scarabaeidae)

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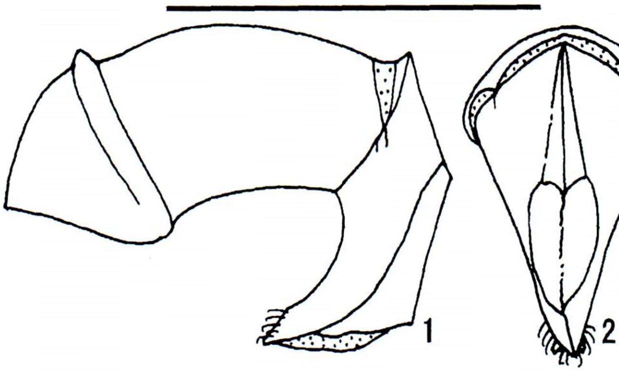
Onthophagus (*Indachorius*) *cheyi* was described by OCHI and KON (2006) based on three female specimens collected from Gomantong, near Sandakan, Sabah, Malaysia. Recently, the third author has collected the male of this species from Sepilok near the type locality. We briefly describe it herein and based on this specimen illustrate its male genitalia.



Figs. 1–2. Male genitalia of *Onthophagus* (*Indachorius*) *cheyi* OCHI et KON; left lateral view (1), and dorsal view (2). Scale 1 mm.

Onthophagus* (*Indachorius*) *cheyi OCHI et KON

(Figs. 1–2)

Onthophagus (*Indachorius*) *cheyi* OCHI et KON, 2006, Ent. Rev. Japan, Osaka, **61**: 175.

Male. Length: 4.7 mm (n=1). Body more strongly convex than in the female. Color almost the same as in the female, though dark yellowish patches on each elytron are well developed; each elytron with four dark yellowish patches; basal two patches as in the female; latero-median one small and extending from 7th to 8th intervals; apical one also small and extending from 2nd to 4th intervals. Head slightly broader than in the female; gena more strongly produced laterad, with genal margin more distinctly rounded; vertex simply formed though feebly and transversely raised, without two slight tubercles; surface more distinctly micro-granulose, weakly and transversely wrinkled only along anterior margin; wrinkles clearly weaker than in the female, almost impunctate in the middle of vertex. Pronotum more strongly convex, slightly shorter than in the female. Elytral intervals flat. Pygidium more strongly convex. Protibia slenderer than in the female, with three external teeth at a glance; very small 4th proximal tooth is present, but barely noticeable. Aedeagus rather robust. Phallobase about 1.0 mm in length (n =1), about 0.5 mm in apical width (n=1). Parameres about 0.8 mm in length (n=1), gently narrowing towards apices in dorsal view, strongly bent backwards in the middle in lateral view; apices very slightly produced laterad and almost symmetrical in dorsal view, fringed with twenty or so white hairs on apical margin, the hairs partly hooked.

Specimen examined. 1♂, Sepilok, near Sandakan, Sabah State, Malaysia, 5–III–2008, A. KASHIZAKI leg.

Reference

OCHI, T., & M. KON, 2006. Notes on the coprophagous scarab-beetles (Coleoptera: Scarabaeidae) from Southeast Asia (XII). Six new species of *Onthophagus* (*Indachorius*) from Borneo. *Ent. Rev. Japan, Osaka*, **61**: 169–180.

Elytra, Tokyo, **36**(2): 357–360, November 22, 2008

Description of the Female of *Platynus kazuyoshii* (Coleoptera, Carabidae)

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Abstract The female of *Platynus kazuyoshii* MORITA et Y. KUROSA is described for the first time. Morphology of the female genitalia is compared with that of *P. magnus* (BATES).

Key words: Coleoptera; Carabidae; *Platynus*; description of female.

Seven species of the genus *Platynus* are known from Japan. Of these, *Platynus* (*Pseudoplatynus*) *kazuyoshii* MORITA et Y. KUROSA, 1994 can be distinguished from all the other species by rather narrow elytra and the large aedeagal apical lobe. This species is highly localized and was described on the basis of only male specimens collected from Chiba Prefecture, Central Japan (MORITA & KUROSA, 1994). After that, YAMAMOTO & WATANABE (2007) reported an additional record of this species including a discovery of the first female specimens. In this paper, I am going to describe the female of *Platynus kazuyoshii* based on the specimens collected by myself.

The abbreviations used herein are as follows: BL – body length (from apical margin of clypeus to apices of elytra); EL – greatest length of elytra; EW – greatest width of elytra; HW – greatest width of head; PA – width of pronotal apex; PB – width of pronotal base; PL – length of pronotum, measured along the mid-line; PW – greatest width of pronotum.

Before going further, I wish to express my deep gratitude to Dr. Munetoshi MARUYAMA of the Kyushu University Museum, Fukuoka for his critical reading and commenting on the manuscript.

Platynus (*Pseudoplatynus*) *kazuyoshii* MORITA et Y. KUROSA, 1994

(Table 1, Figs. 1–2)

Platynus kazuyoshii MORITA et Y. KUROSA, 1994, p. 585; type locality: Shiigi, Misaki-machi, Chiba Prefecture, Central Japan

Specimens examined. 10 ♂♂, 6 ♀♀, Shiigi, Isumi-shi (former name: Misaki-machi), Chiba Prefecture, Central Japan, 16–II–2008, S. YAMAMOTO leg. (deposited in the author's collection).

Description. Female. Similar to male in general appearance. Genitalia (Fig. 1):

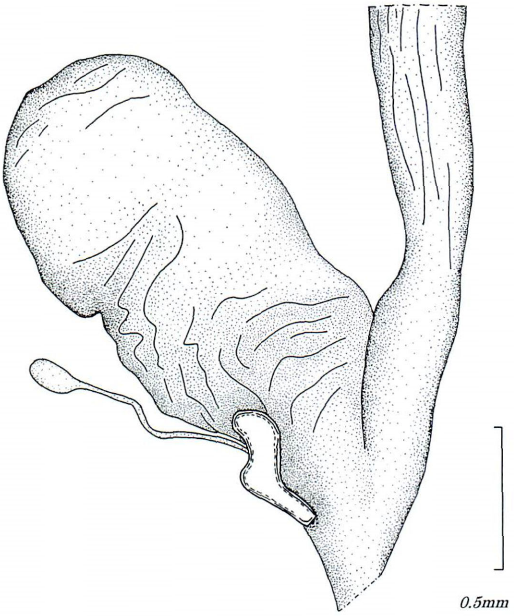

Fig. 1. Female genitalia of *Platynus kazuyoshii.*

Table 1. Measurements and standard ratios of *Platynus kazuyoshii* (n=10 in male, n=6 in female).

	Male	Female
BL	10.11–11.88 (11.37±0.52) mm	10.75–12.13 (11.65±0.52) mm
HW	2.06– 2.19 (2.12±0.05) mm	2.06– 2.19 (2.14±0.05) mm
PW	2.44– 2.75 (2.58±0.11) mm	2.13– 2.63 (2.49±0.19) mm
PL	1.94– 2.25 (2.10±0.10) mm	2.06– 2.13 (2.07±0.05) mm
PA	1.56– 1.94 (1.76±0.11) mm	1.63– 1.88 (1.76±0.09) mm
PB	1.75– 2.06 (1.91±0.11) mm	1.94– 2.06 (1.94±0.11) mm
EW	4.25– 4.56 (4.39±0.11) mm	4.38– 4.81 (4.62±0.17) mm
EL	6.63– 7.50 (7.07±0.28) mm	6.50– 8.29 (7.40±0.61) mm
PW/HW	1.17– 1.28 (1.22±0.88)	1.18– 1.24 (1.20±0.24)
PW/PL	1.11– 1.31 (1.23±0.034)	1.00– 1.28 (1.24±0.025)
PW/PA	1.33– 1.72 (1.47±0.12)	1.40– 1.58 (1.46±0.065)
PW/PB	1.21– 1.50 (1.33±0.12)	1.24– 1.45 (1.32±0.082)
PA/PB	0.83– 1.11 (0.91±0.12)	0.79– 1.00 (0.91±0.07)
EW/PW	1.65– 1.80 (1.70±0.051)	1.70– 1.85 (1.80±0.056)
EL/EW	1.45– 1.71 (1.61±0.079)	1.45– 1.79 (1.60±0.12)

bursa copulatrix oblong-oval; spermatheca gently curved twice widened in apical half, moderately sclerotized, dilated apically; spermathecal gland long, more than 1.5 times as long as spermatheca, attached to apical 1/4 and dorsal side of spermatheca, apical part bulbous, 1/5 as long as whole spermathecal gland.

Remarks. The female is distinguished from the male by the following character

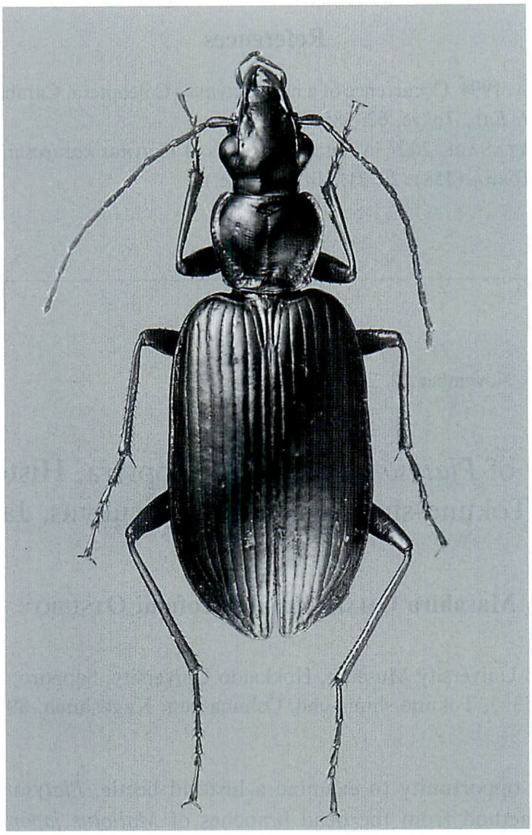

Fig. 2. Female of *Platynus kazuyoshii*, dorsal view.

states: 1) body larger than the average of male; 2) larger value of the ratio EW/PW (Table 1); 3) fore tarsus thinner, with cilia sparser. No distinct difference was observed in the other measurements (Table 1).

Among the sympatric species, *P. kazuyoshii* is closely similar to *P. magnus* (BATES, 1873), but is distinguished from it by the spermatheca narrower and the apical part of the spermathecal grand more bulbous and shorter.

要　　約

山本周平：カズサヒラタゴミムシ雌の記載．—— *Platynus kazuyoshii* MORITA et Y. KUROSA は雄のみで記載されていたので，ここに雌の記載と追加記録をおこなった．また，同属の *P. magnus* (BATES) との比較もおこない，両種の雌交尾器には差異が認められることを明らかにした．

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YAMAMOTO, S., & K. WATANABE, 2007. Additional records of *Platynus kazuyoshii* MORITA et Y. KUROSA. *Coleopterists' News, Tokyo*, (158): 20–21. (In Japanese.)

Elytra, Tokyo, **36**(2): 360, November 22, 2008

New Record of *Platysoma rasile* (Coleoptera, Histeridae) from the Tokuno-shima Island, the Ryukyus, Japan

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We have had the opportunity to examine a histerid beetle, *Platysoma* (*Platysoma*) *rasile*, collected by beating method from the dead branches of *Mallotus japonicus* (THUNB.) MÜLL. ARG., from Tokuno-shima Island, the Ryukyus, Japan. This species has not been hitherto recorded from the Island. The collecting data are as given below.

Platysoma (*Platysoma*) *rasile* LEWIS, 1912

Platysoma (*Platysoma*) *rasile*: HISAMATSU, 1985, 228 [Tanega-shima, Tokara-nakano-shima]. —— ÔHARA, 1986, 96 [Tokara-akuseki-jima, Amami-Ôshima].

Specimens examined. Japan: Ryukyu. [Tokuno-shima] 3 exs., Tete, 8–VI–2008, H. OTSUBO.

Distribution. Japan (Honshu; Shikoku; Kyushu; Tsushima; Tanega-shima; Ryukyu: Tokara-nakano-shima, Tokara-akuseki-jima, Amami-Ôshima, Tokuno-shima). New to Tokuno-shima.

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ÔHARA, M., 1986. On the genus *Platysoma* from Japan. *Pap. Ent. pres. NAKANE, Tokyo*, pp. 91–106.

Elytra, *Tokyo*, **36**(2): 361–364, November 22, 2008

Notes on the Pterostichine Subgenus *Eosteropus* (Coleoptera, Carabidae) from Japan

Part 3. A New Species from the Tôhoku District

Seiji Morita

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Abstract A new pterostichine carabid beetle is described from the Tôhoku District, North Japan, under the name of *Pterostichus* (*Eosteropus*) *sakuraii*.

Recently, an interesting species of the subgenus *Eosteropus* was obtained by Shun-Ichi Sakurai in Yamagata Prefecture and was submitted to me for taxonomic study. An examination of its male genital organ proved that it is no doubt new to science. In this paper, I describe it under the name of *Pterostichus* (*Eosteropus*) *sakuraii*.

The abbreviations used herein are the same as those explained in my previous papers.

Before going further, I wish to express my deep gratitude to Mr. Shun-Ichi Sakurai for supplying me with important material.

***Pterostichus* (*Eosteropus*) *sakuraii* Morita, sp. nov.**

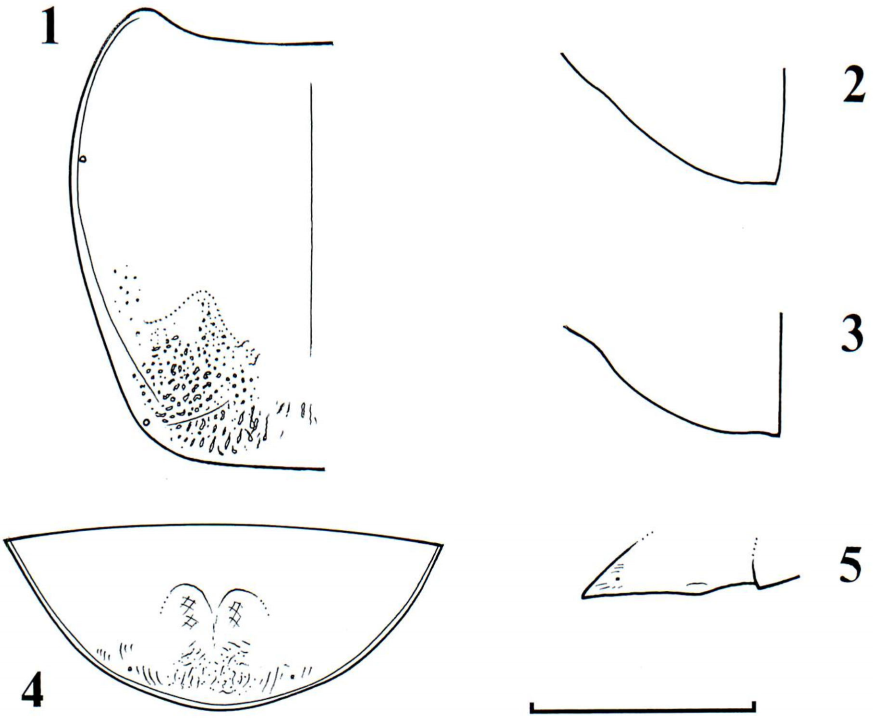
[Japanese name: Sakurai-kuro-naga-gomimushi]

(Figs. 1–11)

Diagnosis. Body slender; sides of pronotum arcuate throughout; hind angles of pronotum rounded; apical parts of elytra rather widely separated from each other; epipleuron gradually narrowed apicad; peculiar shape of aedeagus; right paramere small and C-shaped.

Description. L: 13.5–15.0 mm. Body elongate; colour black; appendages blackish brown; eyes convex; frontal furrows deep, a little divergent posteriad or almost parallel, and reaching the level of anterior supraorbital pore; genae convex; relative lengths of antennal segments as follows: —— I : II : III : IV : V : VI : XI ≒ 1 : 0.34 : 0.86 : 0.85 : 0.87 : 0.85 : 0.81.

Pronotum convex; sides moderately arcuate in front, and then weakly so posteriad; PW/HW 1.35–1.41 (M 1.37) in ♂, 1.31–1.34 (M 1.32) in ♀; PW/PL 1.29–1.34 (M 1.31) in ♂, 1.23–1.30 (M 1.26) in ♀; PW/PA 1.39–1.47 (M 1.44) in ♂, 1.36–1.44 (M 1.40) in ♀; PW/PB 1.44–1.60 (M 1.50) in ♂, 1.50–1.59 (M 1.54) in ♀; PA/PB 1.02–

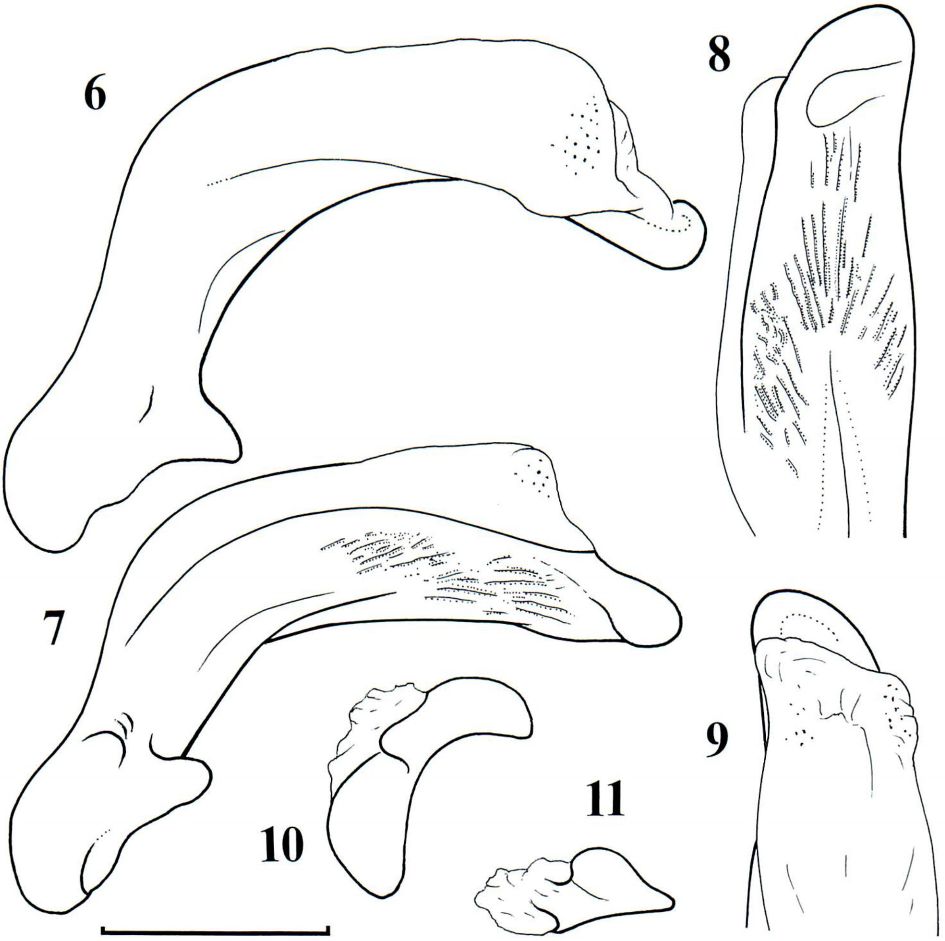


Figs. 1–5. Body parts of *Pterostichus* (*Eosteropus*) *sakuraii* MORITA, sp. nov. —— 1, Pronotum; 2, outline of apex of left eytron in ♂; 3, same in ♀; 4, anal sternite in ♂, ventral view; 5, same, right lateral view. (Scale: 2.00 mm.)

1.09 (M 1.05) in ♂, 1.10–1.11 (M 1.10) in ♀; basal foveae shallow with many coarse punctures and irregular wrinkles; hind angles rounded; microsculpture consisting of fine transverse meshes.

Elytra elongate; EW/PW 1.20–1.34 (M 1.26) in ♂, 1.26–1.34 (M 1.29) in ♀; EL/EW 1.54–1.63 (M 1.59) in ♂, 1.51–1.58 (M 1.54) in ♀; striae smooth; basal part of interval VIII with several transverse sulci; microsculpture composed of fine transverse meshes; apical parts rather widely separated from each other; apices obtuse in ♂, rather sharp in ♀; intervals weakly convex; marginal series composed of 16–20 pores; epipleuron gradually narrowed apicad; interval III usually with three pores; first pore adjoining stria 3 and situated at about basal 1/10–1/5 of elytra; second one adjoining stria 2 and situated at about middle; third one adjoining stria 2 and situated at about basal 13/20–9/10 of elytra; 1 ♂, an additional pore adjoining stria 2 and situated at 1/3 of elytra. WL/EL 0.36 in 1 ♂. In ♂, anal sternite with a longitudinal and weak carina at middle.

Aedeagus elongate, moderately arcuate, and with a longitudinal carina at ventral side of basal part; ventral surface of apical part flat or weakly depressed, rugose and with longitudinal to oblique wrinkles; fovea absent; apical lobe rather elongate and wide; apex obliquely and widely rounded in dorsal view. Everted and inflated inner sac (cf. MORITA, 2007, p. 407) not voluminous, rather simple and covered with spinuls, and



Figs. 6–11. Male genital organ in *Pterostichus* (*Eosteropus*) *sakuraii* MORITA, sp. nov. —— 6, Aedeagus, left lateral view; 7, same, left ventro-lateral view; 8, apical part of aedeagus, ventral view; 9, same, dorsal view; 10, right paramere, left lateral view; 11, same, dorsal view. (Scale: 1.00 mm.)

mainly with an elongate lobe at left side of aedeagus and rolled membraneous part (MORITA, 2007, fig. 6-b) at the apex. Right paramere small, C-shaped and convex.

Type series. Holotype: ♂ (NSMT), allotype: ♀, 11–IV–2004, S. SAKURAI leg. Paratypes: 1 ♂, 2 ♀♀, 11–VIII–1984, S. SAKURAI leg.; 1 ♀, 17–X–2007, S. SAKURAI leg.; 2 ♂♂, 27–XI–2007, S. SAKURAI leg.; 2 ♂♂, 2 ♀♀, 14–IV–2008, S. SAKURAI leg.

Locality. Tazawa, Murayama-shi, Yamagata Prefecture, Tôhoku District, North Japan.

Notes. The standard ratios of body parts shown in the descriptive part are those of 4 ♂♂ and 3 ♀♀.

From all the known members of the subgenus, this new species differs in the shape of elytral apices and genitalic configuration. It is tentatively regarded as a member of the group of *Pterostichus* (*Eosteropus*) *creper* (TSCHITSCHÉRINE, 1902).

要　約

森田誠司：日本産クロナガゴミムシの研究. 3. 東北地方で採集された1新種. —— 山形県から採集された標本を基にサクライクロナガゴミムシ *Pterostichus* (*Eosteropus*) *sakuraii* を記載した. 本種は，きわめて特異な陰茎を持つことで，容易にすべての同亜属の種と識別される.

References

MORITA, S., 2007. Notes on the pterostichine subgenus *Eosteropus* (Coleoptera, Carabidae) from Japan. Part 1. Complex of *Pterostichus japonicus*. *Elytra*, *Tokyo*, **35**: 407–432.

TSCHITSCHÉRINE, T., 1902. Platysmatini (Coleoptera, Carabidae) nouveaux ou peu connus de l'Asie orientale. *Horae Soc*. *ent*. ross., **35**: 494–501.

Elytra, *Tokyo*, **36**(2): 364, November 22, 2008

Additional Record of *Uenanthracus perigonoides* (Coleoptera, Carabidae)

Seiji MORITA

Higashi-gotanda 5–19–7, Shinagawa-ku, Tokyo, 141–0022 Japan

The harpaline species *Uenanthracus perigonoides* KASAHARA (1994, p. 89) was described as a new genus and new species from Shizuoka Prefecture and Tokyo, Central Japan. KASAHARA pointed out that the species dwells under litter at the edges of secondary forests on low mountains. Since the original description, nothing has been added about the species.

Looking into a number of carabids collected by the late Mr. Kengo ONDA, I found a single specimen of this species. I would like to record it as below.

Specimen examined. 1 ♂, Konawa, Hayakawa-chô, Yamanashi Pref., Central Japan. 5–VI–1994, K. ONDA leg.

I wish to express my cordial thanks to Mrs. Mutsumi ONDA for her kindness in supplying me with the valuable material.

Reference

KASAHARA, S., 1994. A new genus and species of harpaline carabid beetle from Central Honshu, Japan. *Elytra, Tokyo*, **22**: 89–93.

Elytra, Tokyo, **36**(2): 365–368, November 22, 2008

Notes on the Bembidiinae (Coleoptera, Carabidae) of Japan
XVII. A New Species of the Genus *Armatocillenus*

Seiji Morita

Higashi-gotanda 5–19–7, Shinagawa-ku, Tokyo, 141–0022 Japan

Abstract A new species belonging to the genus *Armatocillenus* is described from Southwest Japan under the name of *A. nakamurai* Morita, sp. nov.

There are more than 2,000 specimens of the genus *Armatocillenus* of Japan in my carabid collection. Since 1973, I have made collecting trips in various parts of the coral reefs, estuaries of rivers or seashores of Japan. Besides, materials of various parts have been accumulated steadily by friends of mine.

The present part deals primarily with a new species, though a revision of Japanese species will require several years more to complete.

The abbreviations used herein are as follows: L – body length, measured from apical margin of clypeus to apices of elytra; HW – greatest width of head; PW – greatest width of pronotum; PL – length of pronotum, measured along the mid-line; PA – width of pronotal apex; PB – width of pronotal base; EW – greatest width of elytra; EL – greatest length of elytra; WL – length of hind wing; FL – length of metafemur; ML – length of metatrochanter; M – arithmetic mean; NSMT – National Museum of Nature and Science, Tokyo.

I am deeply indebted to Mr. Keisuke Nakamura for his supplying me with important material used in this study, and to Mr. Michiaki Hasegawa for his kind help.

Armatocillenus (*Desarmatocillenus*) *nakamurai* Morita, sp. nov.

[Japanese name: Satsuma-kibanaga-mizugiwa-gomimushi]
(Figs. 1–2)

Diagnosis. Body small and fragile; colour light reddish brown; elytra with dark brown part; apical part of left mandible without tooth; hind wings reduced; metatrochanter normal (ML/FL 0.37–0.44); aedeagal apical lobe rather elongate and not straight in lateral view.

Description. L: 3.00–3.57 mm. Body small and fragile. Colour light reddish brown and not polished; elytral basal parts, lateral margins and apical parts light reddish brown, but the remaining part of elytra dark brown and vaguely defined; labrum, sides of clypeus and mandibles slightly darker than dorsum; antennae and legs pale yellowish

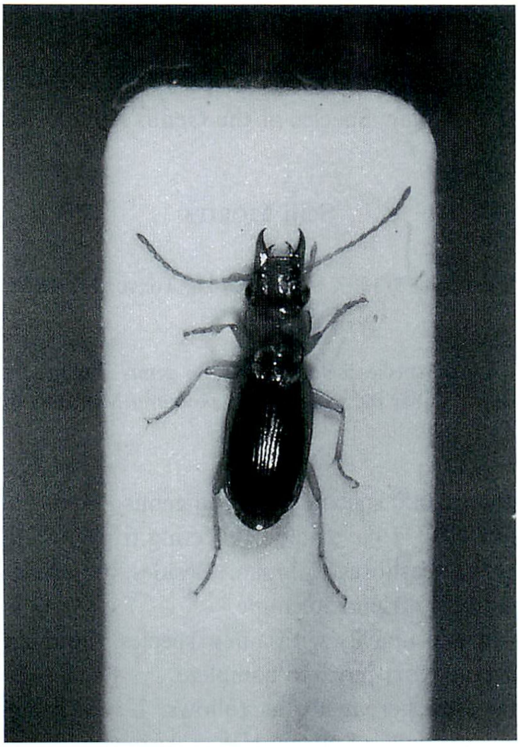


Fig. 1. *Armatocillenus* (*Desarmatocillenus*) *nakamurai* MORITA, sp. nov.

brown.

Head weakly convex; eyes moderately convex; PW/HW 1.00–1.07 (M 1.04) in ♂, 1.05–1.10 (M 1.07) in ♀; frontal furrows shallow, parallel to each other or divergent posteriad, and reaching the mid-eye level; anterior supraorbital pore situated at the mid-eye level, posterior ones situated a little before the post-eye level; microsculpture composed of isodiametric meshes; neck wide; apical part of left mandible without tooth; relative lengths of antennal segments as follows:— I : II : III : IV : V : VI : XI ≒ 1 : 0.69 : 0.78 : 0.76 : 0.95 : 0.83 : 1.11.

Pronotum transverse and moderately convex; PW/PL 1.25–1.32 (M 1.29) in ♂, 1.15–1.17 (M 1.16) in ♀; apex almost straight or very weakly emarginate; PW/PA 1.09–1.14 (M 1.12) in ♂, 1.25–1.36 (M 1.29) in ♀; sides weakly and widely arcuate in front and weakly sinuate at about basal 1/4, and then almost parallel or very weakly divergent towards hind angles; marginal gutters deep; anterior marginal seta situated at apical 1/6; PW/PB 1.28–1.40 (M 1.34) in ♂, 1.29–1.36 (M 1.33) in ♀; PA/PB 1.12–1.26 (M 1.20) in ♂, 1.15–1.25 (M 1.19) in ♀; median line impressed between anterior and posterior transverse impressions, and deeply impressed at basal 1/4; base moderately arcuate, and oblique at the sides; apical angles rather strongly produced and rather pointed at the tips;

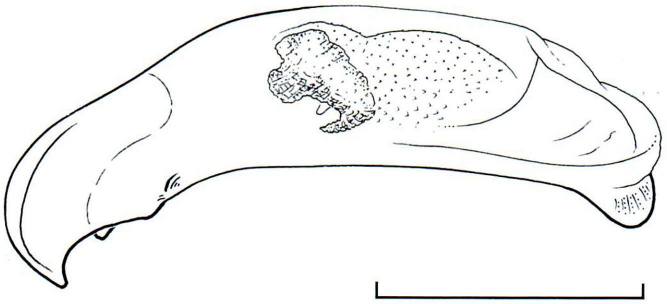


Fig. 2. Aedeagus of *Armatocillenus* (*Desarmatocillenus*) *nakamurai* MORITA, sp. nov., left lateral view. Scale: 0.3 mm.

hind ones right and with a seta near the tip on each side; basal foveae deep and narrow; anterior transverse impression obliterated; posterior transverse impression deep and transverse and laterally merging into basal foveae; microsculpture composed of isodiametric meshes, but partially disordered.

Elytra elongate with arcuate shoulders; EW/PW 1.25–1.30 (M 1.27) in ♂, 1.24–1.27 (M 1.26) in ♀; EL/EW 1.67–1.74 (M 1.71) in ♂, 1.67–1.79 (M 1.74) in ♀; sides weakly arcuate; preapical emargination usually shallow, rarely rather deep; apical parts rather widely separated from each other; apices obtuse; intervals very weakly convex; striae impressed and impunctate; striae 6 and 7 disappearing at basal 7/10 of elytra; two dorsal pores situated on interval III, close to stria 3 or adjoining the stria 3; anterior dorsal pore situated between basal 2/5 and 3/7 of elytra; posterior one at 3/4 and 17/20; microsculpture coarsely impressed, consisting of isodiametric meshes. WL/EL 0.90–1.00 (M 0.95) in 5 ♂♂.

Metatrochanter normal; ML/FL 0.37–0.44 (M 0.41) in ♂, 0.40–0.44 (M 0.42) in ♀.

Aedeagus elongate, hardly arcuate at middle in lateral view; apical lobe rather elongate and simply rounded at the tip in lateral view; inner sac armed mainly with a mat of scales and several small sclerites; each style provided with a long seta and a short or long seta.

Type series. Holotype: ♂ (NSMT), allotype: ♀, 19–IV–2008, S. MORITA & K. NAKAMURA leg. Paratypes: 1 ♂, 6 ♀♀, 28–VI–2007, K. NAKAMURA leg.; 7 ♂♂, 9 ♀♀, 23–XII–2007, K. NAKAMURA leg.; 21 ♂♂, 15 ♀♀, 18–IV–2008, S. MORITA & K. NAKAMURA leg.; 8 ♂♂, 10 ♀♀, 19–IV–2008, S. MORITA & K. NAKAMURA leg.

Type locality. Miyazato-chô (the estuary of Riv. Sendai-gawa), Satsuma-sendai-shi, Kagoshima Prefecture, Southwest Japan.

Notes. This new species can be distinguished from the other members of the subgenus in having a combination of the following features: 1) body small and fragile, 2) elytral with dark brown part, 3) apical part of left mandible without tooth, 4) PA/PB 1.12–1.26, 4) elytral preapical emargination shallow, 5) hind wings reduced, 6) metatrochanter normal (ML/FL 0.37–0.44), and 7) aedeagal apical lobe rather elongate and not straight in lateral view.

The standard ratios of body parts given in the descriptive part are those of five males and five females.

要　約

森田誠司：日本産ミズギワゴミムシ類の知見．XVI．キバナガミズギワゴミムシ *Armatocillenus* の1新種．―― 鹿児島県薩摩川内市から発見されたキバナガミズギワゴミムシ属 *Armatocillenus* の1新種を記載した．この種は，小型で，後翅は縮小し，特徴的な上翅の色彩などから，容易にほかの種と識別される．

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Elytra, Tokyo, **36**(2): 369–376, November 22, 2008

The Blind Trechines of the Subgenus *Pilosotrechiama* (Coleoptera, Trechinae) from Eastern Kyushu, Southwest Japan

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Abstract The blind trechine beetles belonging to the subgenus *Pilosotrechiama* of the genus *Rakantrechus* from eastern Kyushu, Southwest Japan, are revised on the basis of specimens taken at five different localities, and are classified into three taxa herewith regarded as three different species. Two of them, from a limestone cave in Usuki-shi and the Saganoseki Peninsula, are new to science, and are named *Rakantrechus* (*Pilosotrechiama*) *tenuis* and *R.* (*Pil.*) *fretensis,* respectively.

Pilosotrechiama was originally erected for *Rakantrechus mirabilis* S. Uéno as a monotypical subgenus of the genus *Rakantrechus* (Uéno, 1958, p. 199). Its type species was described on a pair of specimens collected in 1953 and 1955 at the bottom of a small pit opening at the innermost of a remnant of the small limestone cave called Tokura-no-ana lying at the eastern coast of Kyushu, which was completely excavated by a lime factory sometime in the 1960s. A second population of *Pilosotrechiama* was located in 1960 and examined again in 1962, but I was unable to determine its true taxonomical status due to the lack of additional topotypical males of *R. mirabilis* which became extinct (cf. Uéno, 2006, p. 54).

Early in the winter of 2007, fifty-five years after the discovery of the holotype of *Rakantrechus mirabilis,* an undoubted new species of *Pilosotrechiama* was found out by Takao Naitô on the Sada-misaki Peninsula of western Shikoku, and was described under the name *Rakantrechus* (*Pil.*) *peninsularis* (Uéno & Naitô, 2008, p. 220, figs. 5–7). It was considered to have been derived from an ancestor that invaded the Sada-misaki Peninsula of Shikoku from the Saganoseki Peninsula of Kyushu through the Hôyo land bridge that existed until twenty thousand years ago. To verify this hypothesis, Naitô made a trip to the coastal areas of eastern Kyushu in the spring of 2008, and succeded in finding out a specimen of *Pilosotrechiama* near the tip of the Saganoseki Peninsula. Three weeks later, Shinzaburo Sone and I also visited the same area, above all the Saganoseki, Nagamé and Youra Peninsulae, and finally located a habitat of *Pilosotrechiama* on the first one of the three. In the meantime, Ken Ito came across an upper hypogean habitat of another *Pilosotrechiama* near the type locality of *R. mirabilis,* though at an elevation much higher than the latter.

Thus, we are now aware of six localities of *Pilosotrechiama,* five in eastern Kyushu and one in western Shikoku. The trechines of this subgenus share extremely similar

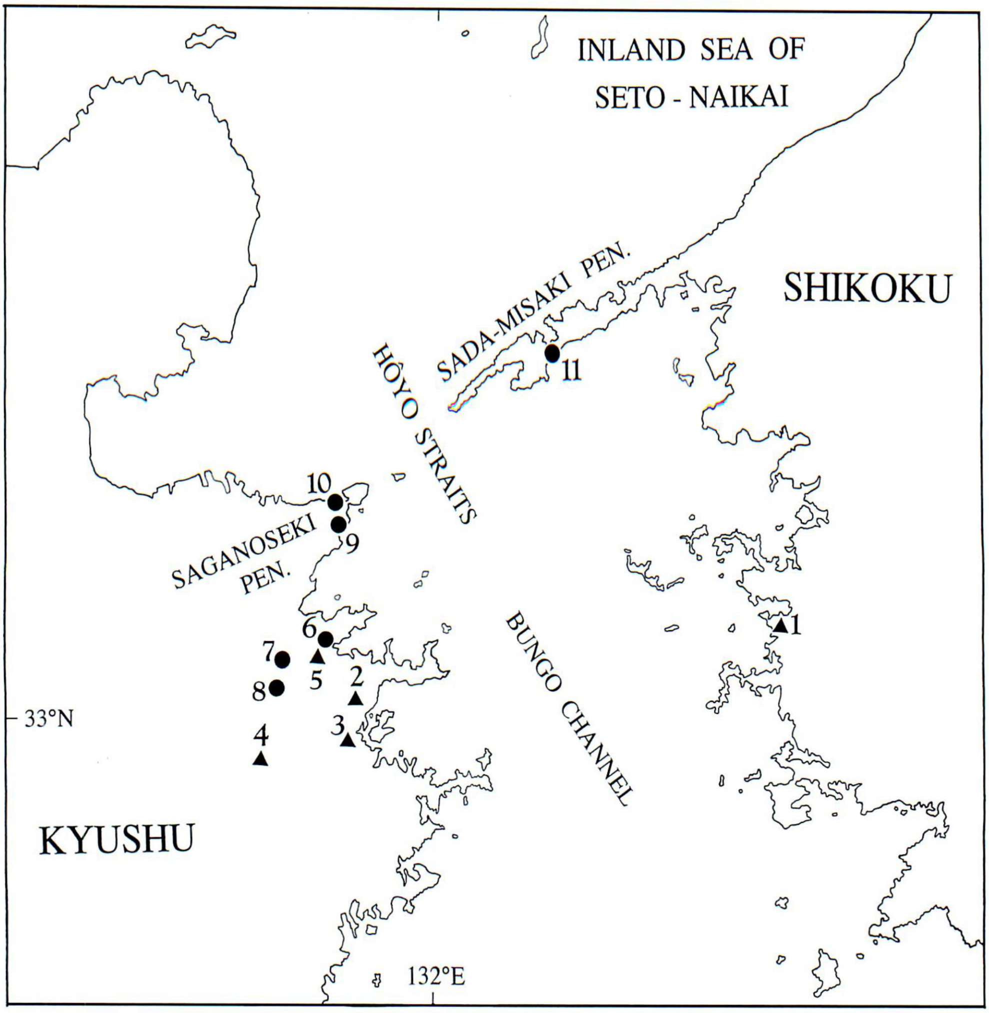


Fig. 1. Map showing the localities of *Pilosotrechiama* (black circles) and the *nomurai* group of *Paratrechiama* (black triangles) in eastern Kyushu and western Shikoku. —— 1, Odorokami (*Rakantrechus obscurus* S. UÉNO et NAITÔ); 2, Karyû-dô Cave (*R. nomurai nomurai* S. UÉNO); 3, Tsuruoka-kô Adit (*R. nomurai fodinarum* S. UÉNO); 4, Onagara-dô Cave (*R. nomurai humerosus* S. UÉNO); 5, Kozono-no-ana Cave (*R. elegans* S. UÉNO); 6, Tokura-no-ana Cave (*R. mirabilis* S. UÉNO); 7, Himé-daké (*R. mirabilis* S. UÉNO); 8, Hitoboshi-dô Cave (*R. tenuis* S. UÉNO); 9, Tanoura (*R. fretensis* S. UÉNO); 10, Furumiya (*R. fretensis* S. UÉNO); 11, Kamagi (*R. peninsularis* S. UÉNO et NAITÔ).

external morphology and even male genitalia are not greatly different in general appearance. However, inner armatures of the aedeagi exhibit stable difference, and the five known populations in eastern Kyushu can be classified into three forms, which are regarded in this paper as three different species.

The abbreviations employed in this paper are the same as those explained in previous papers of mine.

Before going into further details, I wish to express my deep thanks to Dr. Shinzaburo SONE, Mr. Takao NAITÔ and Mr. Ken ITO. Without their invaluable support, this study could never have been completed.

Rakantrechus (*Pilosotrechiama*) *mirabilis* S. UÉNO, 1958

Rakantrechus (*Pilosotrechiama*) *mirabilis* S. UÉNO, 1958, Mem. Coll. Sci. Univ. Kyoto, (B), **25**, p. 201, figs. 1–2; type locality: Tokura-no-ana Cave in Tsukumi City; 1985, Coleopt. Japan. Col., Osaka, **2**, p. 78 [*partim*]; 2006, Threatened Wildlife of Japan — RDB 2nd ed. —, **5**, p. 54.

Additional specimens examined. 2 ♂♂, 1 ♀ [incl. teneral 1 ♂, 1 ♀], Himé-daké, 354 m alt. on SE slope, Kamiaoé, Tsukumi-shi, Ôita Pref., E. Kyushu, 10–VI–2007, K. ITO leg.; 1 ♂, same locality and collector, 1–VII–2007. All in NSMT.

Notes. The specimens recorded above (3.70–4.25 mm in body length) were dug out from the upper hypogean zone at the side of a narrow stream flowing down the southeastern slope of Himé-dake (620 m in height), which is 6.3 km distant to the west-southwest in a beeline from the lost type cave of *R. mirabilis,* and is 350 m higher in elevation than the latter. They agree perfectly with the type series of *R. mirabilis,* and exhibit the following standard ratios of body parts: PW/HW 1.37–1.38 (M 1.38), PW/PL 1.13–1.17 (M 1.15), PW/PA 1.43–1.47 (M 1.45), PW/PB 1.54–1.59 (M 1.56), PA/PB 1.07–1.08 (M 1.08), EW/PW 1.47–1.58 (M 1.52), EL/PL 2.78–3.04 (M 2.94), EL/EW 1.65–1.72 (M 1.68).

Rakantrechus (*Pilosotrechiama*) *tenuis* S. UÉNO, sp. nov.

(Fig. 2)

Rakantrechus (*Pilosotrechiama*) *mirabilis*: S. UÉNO, 1985, Coleopt. Japan Col., Osaka, **2**, p. 78, pl. 15, fig. 5 [*partim*].

Length: 3.95–4.40 mm (from apical margin of clypeus to apices of elytra).

Closely similar to *R. mirabilis* in external morphology, and hardly different from it after due consideration to individual variation. Antennae relatively short as in *R. mirabilis,* reaching apical third of elytra in ♂, reaching apical two-fifths of elytra or shorter than that in ♀.

Standard ratios of body parts as follows: PW/HW 1.29–1.42 (M 1.34), PW/PL 1.10–1.18 (M 1.12), PW/PA 1.44–1.53 (M 1.48), PW/PB 1.49–1.63 (M 1.56), PA/PB 0.98–1.09 (M 1.05), EW/PW 1.50–1.62 (M 1.56), EL/PL 2.85–3.13 (M 2.97), EL/EW 1.61–1.79 (M 1.69).

Definitely different from *R. mirabilis* in the slenderer male genitalia, with differently shaped aedeagal inner armature. Male genital organ relatively large, but lightly sclerotised. Aedeagus slender, about four-ninths as long as elytra, with elongate basal part and relatively narrow apical two-thirds, which is very slightly arcuate and in lateral view, gradually tapered towards apical lobe; basal part rather lightly bent ventrad, with fairly large basal orifice, whose sides are shallowly emarginate; sagittal aileron small and narrow; viewed laterally, apical lobe narrow, slightly reflexed, and almost pointed at the extremity. Inner sac partially covered with minute teeth, particularly near apical orifice, and armed with an elongate copulatory piece, which is about one-third as long as aedeagus, narrow, gradually dilated towards narrowly rounded apex, and covered at the proximal part with a warped row of about a dozen, large, sclerotised teeth. Styles slender, left style a little longer than the right, each bearing three or four setae at the apex.

Type series. Holotype: ♂, allotype: ♀, 28–III–1962, S. UÉNO leg. Paratypes: 1 ♀, 5–IX–1960, S. UÉNO leg.; 3 ♂♂, 5 ♀♀, 28–III–1962, S. UÉNO leg. All deposited in the collection of the Department of Zoology, National Museum of Nature and Science, Tokyo.

Type locality. Limestone cave called Hitoboshi-dô, 250 m in altitude, at Miyamoto of Higashikôno in Usuki-shi of Ôita Prefecture, eastern Kyushu, Southwest Japan.

Notes. This new species has long been regarded as a mere local form of *R. mirabilis,* and was illustrated under that name on Plate 15 of "The Coleoptera of Japan in Color, Vol. II" (1985). Fortunately and thanks to Ken ITO, I was able to examine two mature males of a *Pilosotrechiama* from Himé-daké, which were perfectly identical with the type specimen of *R. mirabilis.* Since the Hitoboshi-dô specimens are apparently different from the Himé-daké specimens in details of the aedeagal inner armature, they must be different at the species level from the type specimen of the same species, and require a new specific name.

The limestone cave Hitoboshi-dô lies at the southwestern foot of Goban-ga-take (716 m in height) and only 3 km distant to the south-southwest in a beeline from the Himé-daké locality, so that the latter is much nearer to the type locality of *R. tenuis* than to that of *R. mirabilis.* It is difficult to elucidate the cause of speciation of *R. tenuis* within the possible past distributional range of *R. mirabilis,* but the genitalic differentiation between the two species seems more advanced than that between *R. mirabilis* and *R. fretensis* to be described on succeeding pages.

Rakantrechus (*Pilosotrechiama*) *fretensis* S. UÉNO, sp. nov.

(Fig. 3)

Length; 4.40–4.60 mm (from apical margin of clypeus to apices of elytra).

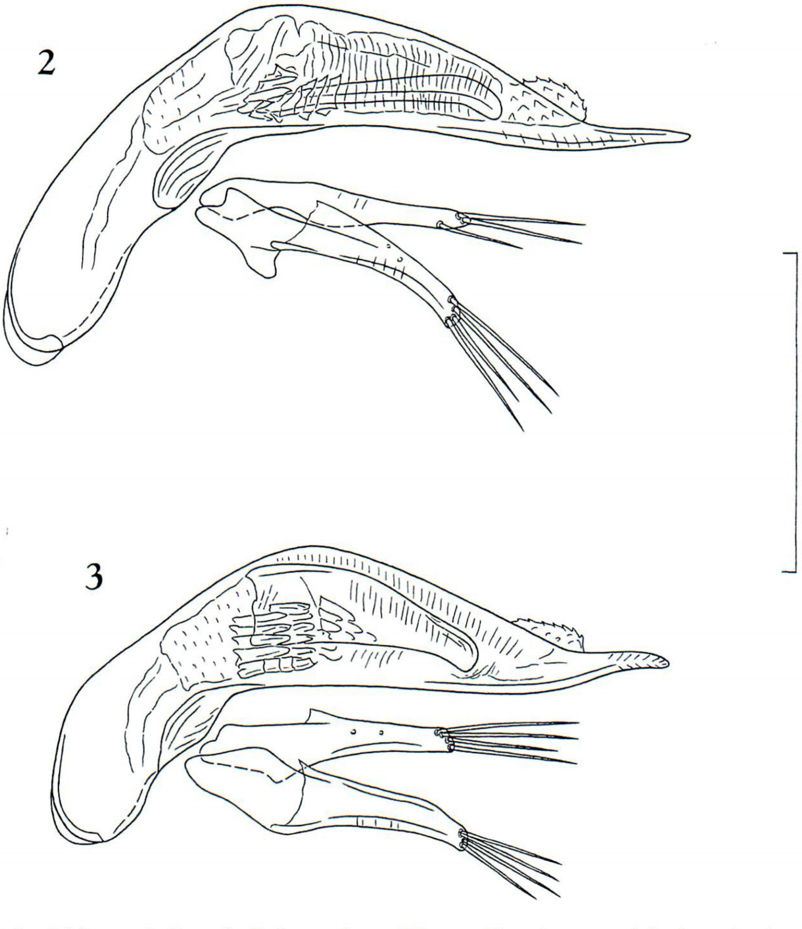
Similar in many respects to *R. peninsularis,* but smaller in size, with pronotum a little narrower on an average and a little less contracted at apex; pronotal sides less strongly arcuate in front, less deeply and more widely sinuate at about basal seventh, and usually subparallel in basal area; PW/HW 1.32–1.37 (M 1.35), PW/PL 1.04–1.08 (M 1.06), PW/PA 1.41–1.46 (M 1.43), PW/PB 1.53–1.60 (M 1.57), PA/PB 1.08–1.14 (M 1.10). Elytra as in *R. peninsularis*; EW/PW 1.54–1.60 (M 1.58), EL/PL 2.84–3.00

(M 2.93), EL/EW 1.70–1.78 (M 1.75); stria 3 with two setiferous dorsal pores at about 1/7 and 3/10 from base, respectively, stria 5 with a single setiferous dorsal pore at about 3/5 from base.

Standard ratios of body parts as follows: PW/HW 1.32–1.37 (M 1.35), PW/PL 1.04–1.08 (M 1.06), PW/PA 1.41–1.46 (M 1.43), PW/PB 1.53–1.60 (M 1.57), PA/PB 1.08–1.14 (M 1.10), EW/PW 1.54–1.60 (M 1.58), EL/PL 2.84–3.00 (M 2.93), EL/EW 1.70–1.78 (M 1.75).

Antennae relatively long, reaching apical fourth of elytra in ♂. Legs long and slender as in *R. peninsularis.*

Male genital organ markedly different from that of *R. peninsularis* and generally similar to that of *R. mirabilis,* fairly large, and moderately sclerotised. Aedeagus about



Figs. 2–3. Male genitalia of *Rakantrechus* (*Pilosotrechiama*) spp.; left lateral view. ——2, *Rakantrechus* (*Pil.*) *tenuis* S. UÉNO, sp. nov., from Hitoboshi-dô Cave at Miyamoto of Higashikôno. ——3, *Rakantrechus* (*Pil.*) *fretensis* S. UÉNO, sp. nov., from Tanoura on the Saganoseki Peninsula.

three-eighths as long as elytra, much narrower than in *R. peninsularis,* higher than wide at middle, with the dorsal margin in lateral view rather strongly arcuate at middle and nearly straight both towards basal part and towards apical lobe; basal part elongate, much narrower than in *R. peninsularis,* and moderately curved ventrad, with small basal orifice, whose sides are hardly emarginate; sagittal aileron very small and narrow; viewed laterally, apical lobe narrow, slightly reflexed at the base, very slightly sinuate, and almost pointed at the extremity; ventral margin nearly straight at middle in profile. Inner sac armed with a fairly large copulatory piece and a patch of large sclerotised teeth at the ventral side of the basal half of copulatory piece; copulatory piece nearly one-third as long as aedeagus, subspatulate, lamellar at the basal part, gradually narrowed towards apex which is slightly curved ventrad and narrowly rounded. Styles fairly slender, left style a little longer than the right, each bearing four apical setae.

Female unknown.

Type series. Holotype: ♂, Tanoura, 25–V–2008, S. UÉNO & S. SONE leg. Paratypes: 1 ♂, same collecting data as for the holotype; 1 ♂, Furumiya, 4–IV–2008, T. NAITÔ leg. All deposited in the collection of the Department of Zoology, National Museum of Nature and Science, Tokyo.

Localities of the type series. Tanoura, 110 m in altitude (type locality!), and Furumiya, 50 m in altitude, both in Saganoseki-chô of Ôita-shi, Ôita Prefecture, eastern Kyushu, Southwest Japan.

Notes. This new species is intermediate between *R. mirabilis* and *R. peninsularis* in the size of body, length of antennae, and configuration of the aedeagus. Its occurrence near the tip of the Saganoseki Peninsula is an indubitable proof of the eastward dispersal of ancestral *Pilosotrechiama* from eastern Kyushu through the Hôyo Straits to the Sada-misaki Peninsula of western Shikoku.

Of the two known localities of *R. fretensis,* Tanoura lies at the southeastern side of the Saganoseki Peninsula about 6.5 km removed from the tip. It is 14.8 km distant to the north by east beyond Usuki Bay from the lost type locality of *R. mirabilis,* and 18.7 km distant to the north-northeast beyond Usuki Bay from Himé-daké, the second known locality of the same species. The two known specimens from this locality were found from near the bottom of a colluvium of schistous detritus accumulated at the side of a narrow stream flowing through an evergreen broadleaved forest. They were dug out from a depth of about 50 cm, and were very agile when exposed.

The second locality, Furumiya, lies at 3.4 km north of Tanoura and near the northern coast of the Saganoseki Peninsula. Here again, the collecting site is located in an evergreen broadleaved forest, but the pile of schistous gravel is fed only by a seepage. The single known specimen of *R. fretensis* was found at the side of the seepage only 15 cm below the surface.

Etymology. The specific name is a Latin adjective *fretensis* meaning "of a strait." It is derived from the situation of the known localities of the new species, which look down the Hôyo Straits.

Key to the Species

1 (6) Smaller species, less than 4.60 mm in body length; aedeagus lower at middle, with narrow elongate basal part; inner sac armed with narrower copulatory piece bearing a small teeth-patch at the proximal part.

2 (3) Aedeagus slenderer; copulatory piece elongate, not dilated towards the proximal part, which is covered with a warped row of large teeth; (Hitoboshi-dô Cave in Usuki-shi) ……………………………… *R.* (*Pil.*) *tenuis* S. Uéno, sp. nov.

3 (2) Aedeagus less slender; copulatory piece dilated towards lamellar proximal part, which is covered with a relatively small patch of large teeth at the ventral side.

4 (5) Smaller species, 3.70–4.25 mm in body length, with relatively short antennae usually reaching apical third of elytra; pronotum a little wider; aedeagus lower at middle in profile; (Tokura-no-ana Cave, Himé-daké) …………………………… ……………………………………………………… *R.* (*Pil.*) *mirabilis* S. Uéno.

5 (4) Larger species, 4.40–4.60 mm in body length, with relatively long antennae reaching apical fourth of elytra; pronotum a little narrower; aedeagus higher at middle in profile; (Saganoseki Peninsula) ………………………………………… ……………………………………………… *R.* (*Pil.*) *fretensis* S. Uéno, sp. nov.

6 (1) Larger species, more than 4.50 mm in body length, with long antennae reaching apical fourth of elytra; aedeagus much higher at middle, with large subglobose basal part; inner sac armed with large copulatory piece widely lamellar at the proximal part and large teeth-patch deeply curved proximally; (Sada-misaki Peninsula in western Shikoku) …………………………………………………… ……………………………………… *R.* (*Pil.*) *peninsularis* S. Uéno et Naitô.

要　　約

上野俊一：九州東部に分布するウスケメクラチビゴミムシ類．——大分県津久見市の石灰洞から記載されたウスケメクラチビゴミムシ *Rakantrechus* (*Pilosotrechiama*) *mirabilis* S. Uéno は，基準産地である徳浦の穴が石灰岩の採掘によって消滅した結果，少なくともその場所では絶滅したものと考えられ，ほかの生息地も見つからないまま，絶滅危惧種として環境省のレッドデータブックに登載されて現在にいたっている．1960年にこの亜属の第二の産地が発見されたが，亜属基準種の雄の同地基準標本を得る手だてがなかったので，種名を確定できずに現在まで放置されてきた．

2007年の暮れになって，同じ亜属の別種が四国の佐田岬で発見され，チビゴミムシ相における九州東部と四国西部との関係が改めて注目されるようになった．それで，九州東部，とくに佐賀関半島などの地下浅層を綿密に調べ直した結果，ウスケメクラチビゴミムシ類の新しい生息地が数カ所確認された．それらのうちのひとつ，姫岳南東面の地下浅層から得られたものは，亜属基準種そのものだと判定され，それとの比較研究の結果，長らく未解決のまま残されてきた第二産地（火灯洞）の個体群は，未記載の別種だという結論になった．また，佐賀関半島先端部近くの

2カ所で発見された新種は，佐田岬のサダメクラチビゴミムシ *R.* (*Pil.*) *peninsularis* に近いが，亜属基準種と共通する特徴も兼ねそなえているので，祖先種が佐賀関半島から豊予陸橋を通って佐田岬半島へ拡散したことを裏づける証拠のひとつになると考えられた．

本論文で記載命名した2新種の名称とその基準産地は下記のとおり．

ヒトボシメクラチビゴミムシ *Rakantrechus* (*Pilosotrechiama*) *tenuis* S. UÉNO（大分県臼杵市東神野宮本，火灯洞）．

サガノセキメクラチビゴミムシ *Rakantrechus* (*Pilosotrechiama*) *fretensis* S. UÉNO（大分県大分市佐賀関町田之浦；半島の北側の古宮でも発見された）．

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Elytra, *Tokyo*, **36**(2): 377–380, November 22, 2008

An Addition to the *Ishikawatrechus* Fauna (Coleoptera, Trechinae) of the Ishizuchi Mountains, Southwest Japan

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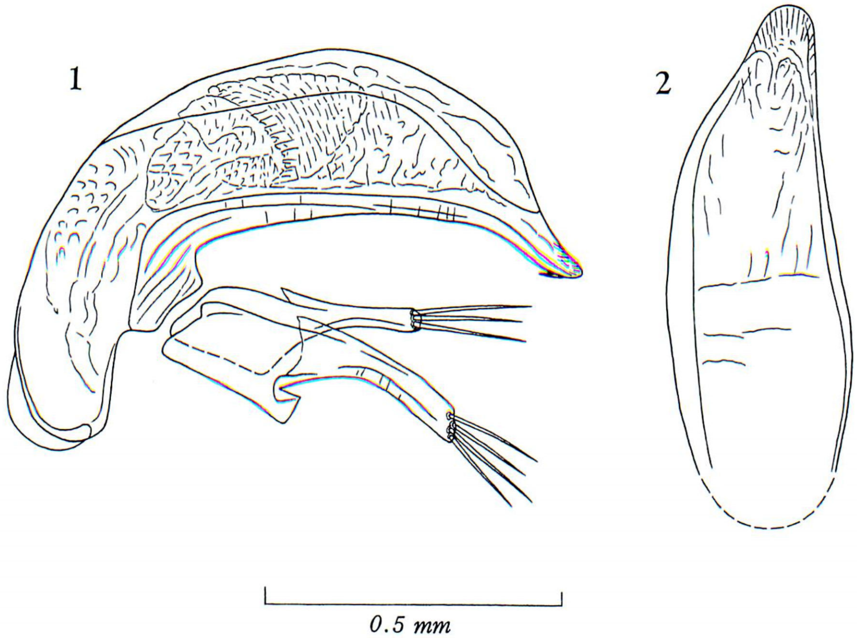
Abstract A new upper hypogean species of blind trechine beetle belonging to the *robustior* group of the genus *Ishikawatrechus* is described from near the northern foot of the Hôsei Mountains, a northeastward branch ridge of the Ishizuchi Mountain Range in northern Shikoku, Southwest Japan. It is closely related to *I. aquilonius* S. UÉNO, but is readily discriminated from it by the difference in striation of the elytra and in conformation of the male genitalia, above all in the presence of an acute ventral hook at the aedeagal apex. The new name given is *Ishikawatrechus doiensis* S. UÉNO et NAITÔ.

The blind trechine beetles of the genus *Ishikawatrechus* occurring on the Ishizuchi Mountains of northern Shikoku were recently enumerated by the first author on the basis of material from more than thirty localities and were classified into fourteen species and one subspecies (UÉNO, 2008). In the course of proof-reading of this paper, another species of the same genus was discovered by the second author at the northern foot of the Hôsei Mountains, a northeastward branch ridge of the Ishizuchi Mountain Range, and was determined as a new species of the *robustior* group. Unfortunately, the discovery was made a little too late to be included in the first author's paper cited above, so that the new species is described in the present paper as an important addition to the *Ishikawatrechus* fauna of the Ishizuchi Mountains.

This new species is a close relative of *I. aquilonius* S. UÉNO (2008, p. 26, figs. 9–10), but the aedeagal apex is provided with a small but acute ventral hook. Its occurrence indisputably shows that the absence of the ventral hook in *I. aquilonius* is an exceptional state, and that even the character state of generic importance is sometimes subject to specific variation. The genitalic gap between *I. robustior* S. UÉNO (1997, p. 10, figs. 6–7) and *I. aquilonius* is sufficiently bridged by the discovery of the present species.



Figs. 1–2. Male genitalia of *Ishikawatrechus doiensis* S. UÉNO et NAITÔ, sp. nov., from Urayama of Doi-chô; left lateral view (1), and apical part of aedeagus, dorso-apical view (2).

Ishikawatrechus doiensis S. UÉNO et NAITÔ, sp. nov.

(Figs. 1–2)

Length: 4.50–5.00 mm (from apical margin of clypeus to apices of elytra).

Belonging to the *robustior* group and closely allied to *I. aquilonius*, but distinguished at first sight from it by sparsely pubescent genae, obviously shallower elytral striation, and the presence of ventral hook at the aedeagal apex.

Colour a little lighter than in *I. aquilonius*, with somewhat more reddish elytra. Head somewhat broader than in *I. aquilonius* due to a little more convex genae sparsely bearing short hairs; antennae slightly longer, reaching basal five-eighths of elytra. Pronotum somewhat longer on an average than in *I. aquilonius*, widest at four-fifths from base; PW/HW 1.36–1.43 (M 1.39), PW/PL 0.89–0.97 (M 0.92), PW/PA 1.34–1.43 (M 1.39), PW/PB 1.39–1.44 (M 1.42), PB/PA 0.94–1.00 (M 0.96) [PA/PB 1.00–1.07 (M 1.04)]; sides moderately arcuate from front angles, gradually convergent posteriad, slightly but widely sinuate near basal fifth, and then slightly divergent towards sharp hind angles.

Elytra ovate, widest at about middle, with shoulders a little more distinct and prehumeral borders a little more deeply emarginate than in *I. aquilonius*; EW/PW 1.73–1.75 (M 1.74), EL/PL 2.42–2.51 (M 2.46), EL/EW 1.49–1.57 (M 1.54); dorsal convexity as in *I. aquilonius*; striae obviously shallower than in *I. aquilonius*, particularly at the external part, striae 6–7 partially evanescent; chaetotaxy as in the other species of the species-group, stria 3 with two setiferous dorsal pores at about 1/7 and 3/10–3/7 from base, respectively, stria 5 with a single setiferous dorsal pore at about 3/5 from base. Legs as in *I. aquilonius*.

Male genital organ more closely similar to that of *I. aquilonius* than to that of *I. robustior*, heavily sclerotised though small. Aedeagus one-third as long as elytra, robust, broader than high, asymmetrical with the left wall reduced and evidently lower than the right, dorsal margin of right wall semicircularly arcuate in profile except for apical part; dorsum widely membraneous; basal part gently curved ventrad, with basal orifice deeply emarginate at the sides; sagittal aileron narrow; apical lobe a little longer than in *I. aquilonius*, with a small but acute ventral hook at the apex; viewed dorsally, apical part gradually narrowed towards apical lobe whose tip is widely rounded; viewed laterally, apical part abruptly narrowed at the basal part of apical lobe, which is narrow, slightly reflexed, and rather pointed at the extremity; ventral margin widely but slightly arcuate at middle in profile. Inner sac largely covered with poorly sclerotised scales and teeth, which are fairly compact at middle. Styles slender, left style longer and larger than the right, each bearing three or four setae at the apex.

Type series. Holotype: ♂, allotype: ♀ (found dead), paratypes: 1♂, 1♀ (found dead), 3–IV–2008, T. NAITÔ leg. All deposited in the collection of the Department of Zoology, National Museum of Nature and Science, Tokyo.

Type locality. Urayama, 200 m in altitude, in Doi-chô of Shikoku-chûô-shi, at the northeastern part of Ehimé Prefecture, northern Shikoku, Southwest Japan.

Notes. This new species was found in the upper hypogean zone deposited on the right side of the Urayama-gawa River at the northwestern foot of Akaboshi-yama (1,453 m in height), one of the heads at the central part of the Hôsei Branch of the Ishizuchi Mountains. Its habitat is a thick layer of schist gravel wholly covered with dark soil, and all the four specimens known were dug out from a depth of about 80 cm. Two females found dead are in a fairly good condition, though both are heavily infected with fungi of Laboulbeniales.

Geographically, the type locality of *I. doiensis* is only 7.1 km distant to the northwest in a beeline from that of *I. aquilonius* and is about 5 km removed from the seashore; the former lies at the northwestern foot of Akaboshi-yama, while the latter lies at the southeastern foot of the same mountain. Besides, the former locality is only 10.7 km distant to the west by north in a beeline from a prospecting adit at Nagano, the type locality of *I. robustior*, which lies at the southern foot of the northeastern part of the Hôsei Branch continuing from Akaboshi-yama. This means that the differentiation of the three species of *Ishikawatrechus* must have taken place within a narrow hilly area stretching between the Dôzan-gawa Valley and the Inland Sea of Setonaikai. How such an almost sympatric speciation could have occurred on the Hôseis is a subject open for future investigations, but it can be regarded at least as a typical sample showing the remarkable species diversity of blind trechines on the Ishizuchi Mountains.

Incidentally, *I. orientalis* S. UÉNO (2008, p. 23, figs. 6–8), a fourth member of the *robustior* group, is different from the other three species by the almost symmetrical aedeagus and is isolated to near the eastern end of the main range of the Ishizuchi Mountains.

要　約

上野俊一・内藤隆夫：石鎚山地のツヤメクラチビゴミムシ相に追加される1新種. —— 石鎚山脈の支脈を形成する法星山地の赤星山北西麓から，地下浅層性メクラチビゴミムシの1新種を記載し，ドイメクラチビゴミムシ *Ishikawatrechus doiensis* S. UÉNO et NAITÔ という新名を与えた．この種は，ツヤメクラチビゴミムシ属のキンシャメクラチビゴミムシ種群に属し，アカボシメクラチビゴミムシ *I. aquilonius* S. UÉNO に類縁が近いが，属徴である雄交尾器中央片先端部腹面の鉤状突起が，既知の2種の場合の中間の状態を示す点でいちじるしく，分類形質を評価するうえでも，系統を解析するうえでも，貴重な存在だと考えられる．

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Elytra, Tokyo, **36**(2): 381–386, November 22, 2008

Trechiama ion (Coleoptera, Trechinae), a Remarkable New Species from Chûgoku District, West Japan

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Abstract A new anophthalmic trechine species belonging to the group of *Trechiama oni* is described from the central part of Okayama Prefecture in western Honshu, under the name *T. ion* Ashida et Souma. This new species resembles *T. oni* in the configuration of male gentalia, but is easily discriminated from the latter species by external morphology, i.e., more elongate shape of elytra, presence of a pair of postangular setae on pronotum, and unique elytral chaetotaxy. Since the presence of three setiferous dorsal pores on the third stria of each elytron is quite exceptional among the members of the *T. oni* group, *T. ion* is regarded as a representative of a new species-complex in the group of *T. oni*.

Eleven species-groups are recognized in the trechine genus *Trechiama* from Japan (Uéno, 1985 a; Ashida, 2000). Of these, two distinct groups of *T. oni* and *T. yokoyamai* have so far been recorded from Okayama Prefecture in Chûgoku District, West Japan. The former group consisting only of anophthalmic species is known from two limestone caves and several upper hypogean habitats in the northern part of the prefecture (Uéno, 1955, 1985 b, 1985 c, 2000; Ashida, 2001), whereas the latter consisting of oculate species from a number of caves in the Atetsu-Jôbô limestone area in the western part (Uéno, 1958 b). Recently, we found a peculiar species of *Trechiama*, which seemed to be an intermediate between the groups of *T. oni* and *T. yokoyamai* by external characteristics, from the central part of the prefecture. After a close examination of male genital organ, we concluded that it might belong to the former group. Here we are going to describe this interesting new species.

The abbreviations used herein are the same as those explained in Ashida (2001). Measurement was carried out using six male and six female specimens.

Trechiama (s. str.) *ion* ASHIDA et SOUMA, sp. nov.

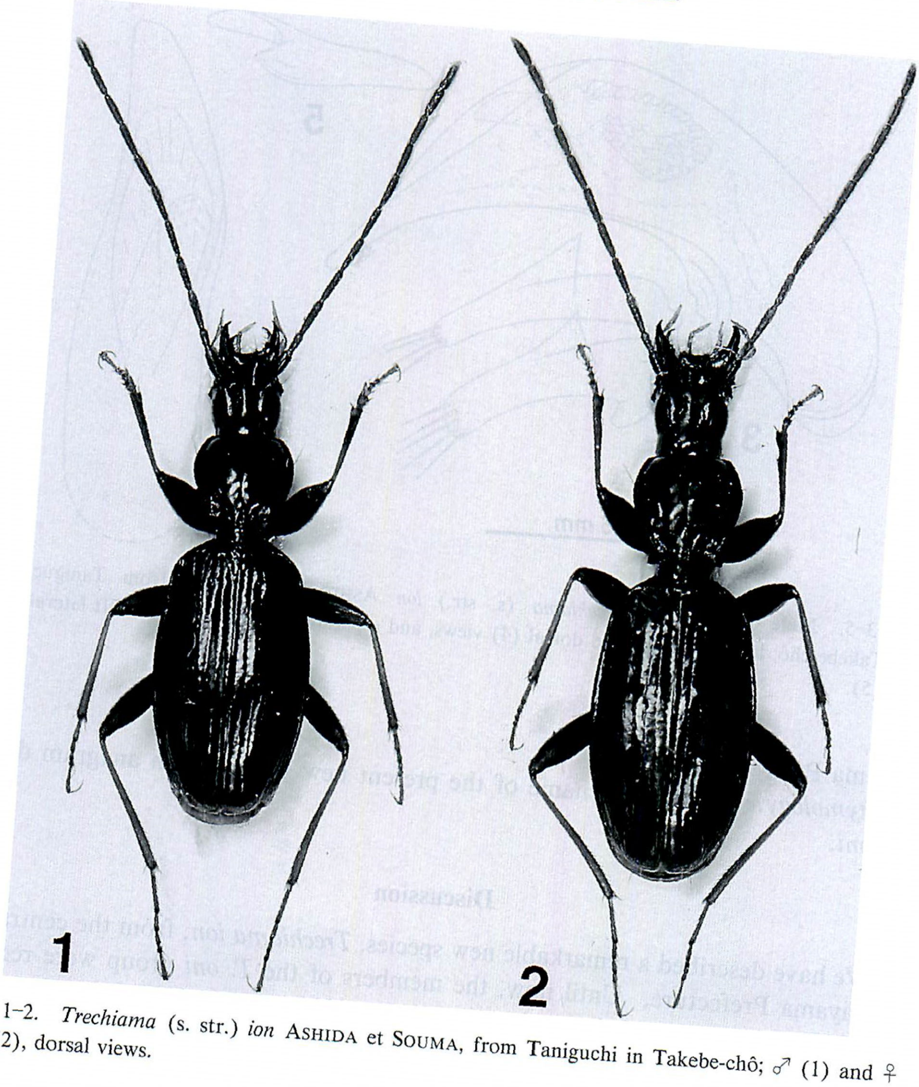
(Figs. 1–5)

Length: 5.90–7.10 mm in male, 5.60–6.15 mm in female (from apical margin of clypeus to apices of elytra).

Belonging to the group of *Trechiama oni* and similar in male genitalic features to *T. oni* (UÉNO, 1955, p. 30, figs. 1–2; 1985 b, pp. 168, 181, figs. 12–14) and *T. angustus* (UÉNO, 1985, p. 2, figs. 1–4), but externally different from the latter two species in the presence of a postangular pair of marginal setae on pronotum and three setiferous dorsal pores on the third stria of each elytron.

Color dark reddish brown with light-colored appendages. Head as in *T. oni*, but the remnant of eyes is a little larger; antennae more or less stouter. Pronotum more distinctly cordate than in *T. oni*, much wider than length, widest at about two-thirds from base, more strongly narrowed toward base than toward apex, moderately convex on dorsum, and depressed at basal part; frontal margin very slightly emarginate with obtuse front angles; sides strongly rounded in front, sinuate at basal fourth, and more or less divergent toward hind angles, which are sharp and protrude postero-laterad; postangular setae present; basal margin slightly emarginate at middle; PW/HW 1.39–1.51 (M 1.46), PW/PL 1.02–1.11 (M 1.08), PW/PA 1.39–1.51 (M 1.44), PW/PB 1.37–1.49 (M 1.43), PA/PB 0.95–1.04 (M 1.00). Elytra oblong-oval, slenderer and more elongate than those of *T. oni*, widest just behind the middle, and almost equally narrowed toward bases and apices; shoulders distinct unlike *T. oni*, with prehumeral borders more oblique; EW/PW 1.50–1.62 (M 1.55), EL/PL 2.75–2.87 (M 2.81), EL/EW 1.60–1.74 (M 1.68); dorsum somewhat depressed around suture, with striae rather shallowly impressed; three setiferous dorsal pores on stria 3 located at 12–17/100, 38–52/100 and 69–80/100 from base, and two pores on stria 5 at 21–24/100 and 58–65/100 from base. In two male paratypes, middle pore on stria 3 of left elytron and apical pore on stria 3 of right elytron lacking, respectively. Legs more or less stouter than in *T. oni*.

Male genital organ large, moderately sclerotized, and similar in basic structure to that of *T. oni*. Aedeagus about one-third as long as elytra, convex on dorsum, and moderately arcuate; basal part somewhat ampler than in *T. oni*, but less strongly curved ventrad; basal orifice rather small, whose sides are moderately emarginate; sagittal aileron small and narrow; viewed laterally, apical part gradually tapered toward apex and slightly curved ventrad, with the tip very slightly turned up; viewed dorsally, middle part sinuate, and gradually narrowed toward apex, which is subtruncated. Inner sac armed with well-developed teeth-patches and a copulatory piece; left proximal teeth-patch very large, horseshoe-shaped, consisting of large heavily sclerotized teeth; left apical teeth-patch also well-developed, consisting of small teeth and elongate scales; right dorsal teeth-patch small, lying just inside apical orifice; copulatory piece elongate, two-fifths as long as aedeagus, bilobed, with heavily sclerotized basal and left apical parts and very lightly sclerotized right apical lobe; left apical part triangular and slightly reflexed; right apical lobe hyaline, rolled ventrad, whose apex is rounded. Styles fairly

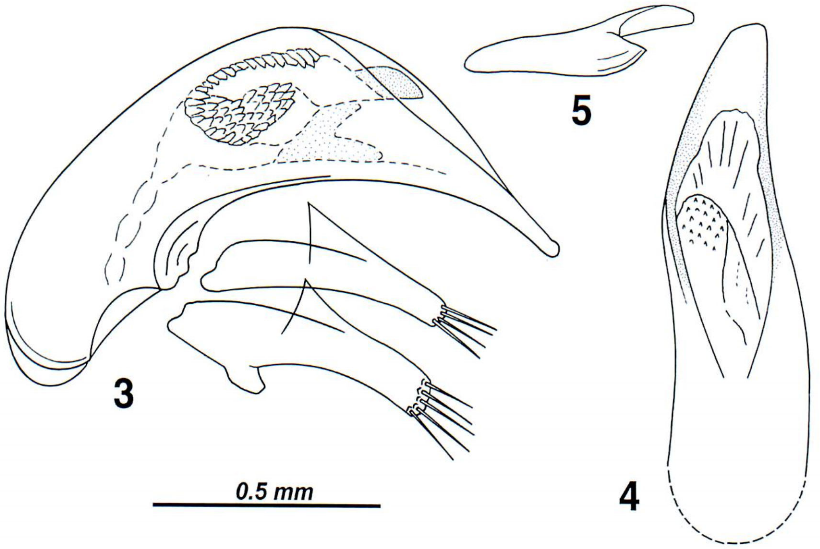


Figs. 1–2. *Trechiama* (s. str.) *ion* ASHIDA et SOUMA, from Taniguchi in Takebe-chô; ♂ (1) and ♀ (2), dorsal views.

short and broad; left one broader than the right, and provided with four to six setae at apex; right one with four to five setae at apex.

Type series. Holotype: ♂, 24–IX–2006, K. ITÔ leg. Paratypes: 1 ♂, 1 ♀, Taniguchi, 22–V–2005, A. SOUMA leg.; same locality, 3 ♂♂, 7 ♀♀, 24–IX–2006, T. SAITÔ & K. ITÔ leg.; 3 ♂♂, 5 ♀♀, same locality, 23–IX–2007, A. SOUMA, S. YAMASHITA & H. ASHIDA leg.; 1♀, western slope of Takajô-yama Hill (336 m in height), 24–IX–2006, T. SAITÔ leg.; 1 ♀, Nagao-shimo, 24–IX–2006, K. ITÔ leg. Holotype and one female paratype are preserved in the National Museum of Nature and Science, Tokyo.

Localities of type specimens. Taniguchi (130–150 m in altitude, type locality), Takajô-yama and Nagao-shimo, all in Wada-minami, Takebe-chô, Okayama-shi,



Figs. 3–5. Male genitalia of *Trechiama* (s. str.) *ion* ASHIDA et SOUMA, from Taniguchi in Takebe-chô; left lateral (3) and dorsal (4) views, and separated copulatory piece, left lateral view (5).

Okayama Prefecture.

Etymology. The specific name of the present new species is an anagram derived from *oni*.

Discussion

We have described a remarkable new species, *Trechiama ion*, from the central part of Okayama Prefecture. Until now, the members of the *T. oni* group were recorded from the northern part of the prefecture (UÉNO, 1955, 1985 b, 1985 c, 2000; ASHIDA, 2001), and those of the *T. yokoyamai* group were from the western part (UÉNO, 1958 b). The former group is anophthalmic, lacks postangular setae on pronotum except for the *T. yamajii* complex, and has stable elytral chaetotaxy of [0+2] (indicating the possession of 0 and 2 setiferous dorsal pores on striae 3 and 5, respectively), whereas the latter has faceted eyes, possesses postangular setae on the pronotum, and shows variable elytral chaetotaxy of [2–4+1–3]. On the other hand, *T. ion*, the present new species, is anophthalmic but has relatively large remnant of eyes, has postangular setae on pronotum, and shows a unique elytral chaetotaxy of [3+2]. At first sight of these external characteristics, the present new species looks to be an intermediate of these two groups. However, as illustrated above, the male genitalic features clearly show that it belongs to the *T. oni* group. At present, the members of this group distributed in Okayama Prefecture are classified into three species-complexes: the *oni* complex (*T. oni* S. UÉNO, 1955; *T. angustus* S. UÉNO, 1985; *T. humicola* S. UÉNO, 2000), the *fujitai* complex (*T. yukikoae* S. UÉNO, 1985; *T. moritai* S. UÉNO, 1985; *T. yamashitai* ASHIDA, 2001), and the *yamajii* complex (*T. yamajii* S. UÉNO, 2000). Since *T. ion* shares the common features with *T. oni* in terms of the male genitalia, we propose to establish a new species-complex of *T. ion* at the side of the *T. oni* complex.

Taniguchi, the type locality of the present species, is located on the left side of the Asahi-gawa River that flows from the Chûgoku Hills into the Seto Inland Sea, and is just a few hundred-meters distant from the river bank. The second and third localities are also on the left side of the river and about 2 km distant to the east and the southeast from the type locality, respectively. The type specimens of the present species were dug out from colluvium deposited along streams at the depth of 30–80 cm.

Taniguchi is about 18 km distant to the east by south from the Kanachi-ana Cave, one of the easternmost localities of *T. yokoyamai ishikawai*; about 28 km distant to the southeast from the Kôjiro-oni-no-ana Cave, the type locality of *T. oni*; and about 25 km distant to the south-southwest from Yamoto, the type locality of *T. angustus*. Kôjiro-oni-no-ana and Kanachi-ana Caves are located along different branches of the upstream of the Asahi-gawa River. Therefore, it may be possible that *T. ion* originated from a hybrid of *T. oni* and *T. yokoyamai ishikawai*, whose ancestors were drifted by flood of the Asahi-gawa River, and consequently met with each other and colonized at the downstream of the river. It is worth noting that *T. insolitus* S. UÉNO, 1959, another isolated species in the *T. oni* group, coexists with *T. yokoyamai yokoyamai* S. UÉNO, 1958, in the limestone caves of the Taishaku limestone area in Hiroshima Prefecture, and has quite unique elytral chaetotaxy of [3–4+0]. This may also be caused by a specific interaction between two different groups.

Acknowledgments

We thank Messrs. Kazue ITÔ, Takumi SAITÔ and Shun-Ichi YAMASHITA for their help in the field research, and Dr. Shun-Ichi UÉNO of the National Museum of Nature and Science, Tokyo, for his continuous guidance.

要　　約

芦田　久・相馬明直：中国地方より見出されたオニメクラチビゴミムシ群の特異な1新種. ── 岡山県中央部に位置する岡山市建部町の旭川左岸よりオニメクラチビゴミムシ群に属する盲目の1新種を見出し，タケベメクラチビゴミムシ *Trechiama* (s. str) *ion* ASHIDA et SOUMA と命名して記載した．本種の雄交尾器はオニメクラチビゴミムシのそれに似ており系統関係が示唆されるものの，上翅の形状，前胸後角に剛毛を有する点，上翅第3条に3つの剛毛孔点を有する点などの体の外見の特徴により容易に識別できる．とくに，上翅の剛毛式 [3+2] はオニメクラチビゴミムシ群の中では特異であることから，本種は独立の1系列を形成すると考えられるので，オニ種群の中に新たなタケベメクラチビゴミムシ系列の設立を提唱した.

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Elytra, Tokyo, **36**(2): 387–395, November 22, 2008

Records of *Ohomopterus arrowianus* (Coleoptera, Carabidae) in the Southwestern Part of Shizuoka Prefecture, Central Japan, with Description of a New Subspecies

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Abstract A new subspecies of *Ohomopterus arrowianus* is described under the name *matsunagai* from the Iwatabara Plateau of southwestern Shizuoka Prefecture in Central Japan. Records of the nominotypical *arrowianus* and *O. a. komiyai* from the surrounding areas are also given.

Ohomopterus arrowianus is a well-known carabid beetle occurring in the central part of Honshu in Central Japan. The species is polytypical and is classified into seven subspecies mainly on the male genitalic morphology (Ishikawa & Kubota, 1994; Kubota & Yahiro, 2003), though a part of them are considered to be of hybrid origin viewed from the molecular phylogenetical studies (Imura, Akita *et al*., 2005; Imura, Tominaga *et al*., 2005; Su *et al*., 2006; etc.). One of them, subsp. *komiyai*, is known to be distributed between the lower courses of the Ôi-gawa and Tenryû-gawa Rivers in the southwestern part of Shizuoka Prefecture. However, our knowledge is not necessarily sufficient for details of its distribution and local variation. Above all, the southwestern part of the distributional range near the lower course of the Tenryû-gawa has been poorly investigated.

In the spring of 2007, a series of carabid specimens referable to *O. arrowianus* were collected by Masamitsu Matsunaga from the Iwatabara Plateau lying on the left bank of the lower Tenryû-gawa River, and were submitted to me for study through the courtesy of Yoshihiko Shichino. Examining the specimens by himself, Matsunaga was aware of the fact that the Iwatabara specimens could be discriminated from subsp. *komiyai* by larger body size and differently shaped male genital organ. Closer examination made by myself proved that Matsunaga's samples were surely distinguishable from all the known races of *O. arrowianus* mainly in characteristically featured digitulus of the male genital organ. After making further searches with the aid of Matsunaga and Shichino in 2008, I have come to the conclusion that the Iwatabara population is worth regarded as a good geographical race. In this paper, I am going to describe it as a new subspecies of *O. arrowianus* under the name of *matsunagai* and give some additional records of the two neighboring subspecies, *arrowianus* (s. str.) and *komiyai* from the southwestern part of Shizuoka Prefecture.

The abbreviations of collector's name used in the text are as follows: MM – Masamitsu MATSUNAGA [松永正光], YS – Yoshihiko SHICHINO [七野芳彦], YI – Yûki IMURA.

Before going further, I wish to express my deep appreciation to Mr. Masamitsu MATSUNAGA of Shizuoka-shi without whose enthusiastic searches this work could not have been accomplished. Hearty thanks should be expressed to Mr. Yoshihiko SHICHINO of Suita-shi who kindly entrusted me with the study of MATSUNAGA's specimens and helped my field works on and around the Iwatabara. Thanks are also due to Dr. Shun-Ichi UÉNO (National Museum of Nature and Science, Tokyo) for reading the manuscript of this paper.

Ohomopterus arrowianus arrowianus BREUNING, 1934

Carabus (*Apotomopterus*) *yaconinus*: BREUNING, 1932, Best.-Tab. eur. Coleopt., (104): 1–288, p. 233 [nec BATES, 1873].

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Ohomopterus arrowianus: Kinki Research Group of Carabid Beetles, 1979, Spec. Publ. Osaka Mus. nat. Hist., Osaka, p. 13.

Specimens examined. [Iwata-shi] 3♂♂, 3♀♀, Kanda [神田] in Kaminobé [上野部], 26–IV–2008; 5♂♂, 5♀♀, Teradani-shinden [寺谷新田], 26–IV–2008; 4♂♂, 1♀, Teradani [寺谷], 12–I–2007; 1♀, same locality, 2–IV–2007; 2♂♂, 4♀♀, Toyoda-nishi-no-shima [豊田西之島], 11–IV–2008; 7♂♂, 7♀♀, same locality, 26–IV–2008; 3♂♂, 3♀♀, Miyamoto [宮本], 26–IV–2008; 10♂♂, 10♀♀, Toyo-oka [豊岡], 26–IV–2008; 1♂, 1♀, Kaketsuka [掛塚], 26–IV–2008; 9♂♂, 10♀♀, four different stations (pine grove near the seashore, thicket near the village, etc.) in Komaba [駒場], 22–IV〜6–V–2008; 1♀, Fukudé-nakajima [福田中島], near Fukudé-kôen Park [福田公園], 21–V–2008; 1♂, Fukudé [福田], ca. 200 m east from Fukudé-kôen Park, 29–IV–2008; 1♀, same locality, 30–IV–2008; all but the last three collecting sites (Komaba, Fukudé-nakajima and Fukudé) are indicated by the riverside grassy area on the left bank of the Tenryû-gawa River. All the specimens were collected by MM and preserved in the collections of YI and MM.

Notes. Judging from the male genitalic features, all the examples recorded from the above localities seem to have originated somewhere on the right (western) bank of the Tenryû-gawa River, the main territory of *O. a. arrowianus*. They must have reached the opposite (left or eastern) bank most probably on the occasion of flood, and colonized tentatively at each station. Two isolated colonies (Fukudé-nakajima and Fukudé, each corresponding to Nos. 9 and 10 on Fig. 17) found near the seashore in the southeastern end of Iwata-shi are assumed to have been drifted by an ocean current from the mouth of the Tenryû-gawa River. According to MATSUNAGA, these drift-established populations are rather commonly recognized along the left bank of the lower Tenryû-gawa River, suggesting that this type of dispersal is not so rare in this area.

Ohomopterus arrowianus komiyai ISHIKAWA, 1966

(Figs. 1–6)

Apotomopterus insulicola komiyai ISHIKAWA, 1966, Bull. natn. Sci. Mus., Tokyo, **9**, p. 12, fig. 2; type locality: Mt. Ogasayama, Ogasa Co., Shizuoka Prefecture.

Carabus (*Ohomopterus*) *arrowianus komiyai*: ISHIKAWA & KUBOTA, 1994, Bull. biogeogr. Soc. Japan, Tokyo, **49**, p. 118.

Specimens examined. [Shimada-shi] 2 ♂♂, 3 ♀♀, Yoko-oka 〔横岡〕, 10–III–2005, MM leg.; 1 ♂, 2 ♀♀, Yoko-oka-shinden 〔横岡新田〕, a riverside area on the right bank of the Ôi-gawa River, 26–V–2008, MM leg.; 1 ♂, Kanaya 〔金谷〕, 2–II–1967, K. NISHIDA leg.; 1 ♂, 2 ♀♀, same locality, 27–XII–1970, YI leg.; 2 ♂♂, 3 ♀♀, Yui 〔湯日〕, 20–V–1989, YI leg.; 2 ♂♂, 2 ♀♀, Sakamoto 〔坂本〕, 26–I–2006, MM leg.; [Makinohara-shi] 2 ♂♂, 2 ♀♀, Sugegaya 〔菅ヶ谷〕, 4–III–2008, MM leg.; 8 ♂♂, 5 ♀♀, Jitôgata 〔地頭方〕, 4–III–2008, MM leg.; 6 ♂♂, 10 ♀♀, Horino-shinden 〔堀野新田〕, 9–III–2008, MM, YS & YI leg.; [Omaezaki-shi] 2 ♂♂, 1 ♀, Kadoya 〔門屋〕, 30–IV–2008, MM leg.; 2 ♂♂, 3 ♀♀, north of Sakuragaiké Pond 〔桜ヶ池〕 in Sakura 〔佐倉〕, 11–III–2008, MM leg.; [Kikugawa-shi] 1 ♂, Tomita 〔富田〕, 10–III–2005, MM leg.; 5 ♂♂, 1 ♀, Kan-no-o 〔神尾〕, 9–III–2008, MM, YS & YI leg.; 7 ♂♂, 4 ♀♀, Konpira-jinja Shrine 〔金比羅神社〕 in Katô 〔河東〕, 9–III–2008, MM, YS & YI leg.; [Kakegawa-shi] 6 ♂♂, 4 ♀♀, Mt. Awa-ga-také 〔粟ヶ岳〕, 22–II–1982, YI leg.; 5 ♂♂, Terashima 〔寺島〕, 18–III–2007, MM leg.; 2 ♂♂, 7 ♀♀, Yuké 〔遊家〕, 28–II–2008, MM leg.; 1 ♂, 3 ♀♀, Hongô 〔本郷〕, 28–II–2008, MM leg.; 5 ♂♂, 5 ♀♀, Mt. Ogasa-yama 〔小笠山〕, 11–II–1982, YI leg.; 5 ♂♂, 3 ♀♀, Ôhama-kôen Park 〔大浜公園〕 in Ôsaka 〔大坂〕, 9–III–2008, MM, YS & YI leg.; [Fukuroi-shi] 3 ♂♂, 3 ♀♀, Muramatsu 〔村松〕, 28–II–2008, MM leg.; 10 ♂♂, 6 ♀♀, Hatta-san 〔法多山〕, 20–V–1989, YI leg.; 1♂, Toyosawa 〔豊沢〕, 13–IV–2007, MM leg.; 4 ♂♂, 5 ♀♀, Asaba 〔浅羽〕, 13–IV–2007, MM leg.; 1 ♂, Minato 〔湊〕, ca. 150 m north from the seashore called Asaba-kaigan 〔浅羽海岸〕, 13–V–2008, MM leg.; 6 ♂♂, 6 ♀♀, same locality, 21–V–2008, MM leg.; [Mori-machi] 3 ♂♂, 3 ♀♀, west of Mt. Komohari-yama 〔菰張山〕 in Mikura 〔三倉〕, 8–III–2008, MM & YS leg.; [Tenryû-ku in Hamamatsu-shi] 1 ♂, Yokokawa 〔横川〕, 8–III–2008, MM & YS leg.; 2 ♂♂, 12 ♀♀, Tadarai 〔只来〕, 8–III–2008, MM & YS leg.; 9 ♂♂, 6 ♀♀, Yamahigashi 〔山東〕, 8–III–2008, MM & YS leg.; 3 ♂♂, 4 ♀♀, Futamata-chô-ôsono 〔二俣町大園〕, a riverside area on the left bank of the Tenryû-gawa River, 26–IV–2008, MM leg.; [Iwata-shi] 3 ♂♂, 2 ♀♀, Minamida-ihê-shinden 〔南田伊兵衛新田〕, ca. 780 m inside from seashore, 26–IV–2008, MM leg.; 2 ♂♂, same locality, 29–IV–2008, MM leg.; the specimens are separately preserved in the collections of MM, YS and YI.

Distribution. Hilly to mountainous areas in the region between the lower courses of the Ôi-gawa and Tenryû-gawa Rivers except for the Iwatabara Plateau.

Notes. Viewed from the male genitalic features, the present subspecies seems to show some local variations. In the specimens from the southeastern end of the distributional area, apical half of the digitulus is often wider and robuster (Fig. 6) than in the specimens from the type locality (Figs. 1–3). Those from northwestern Kakegawa-shi or north-central Fukuroi-shi (Nos. 25 and 30 in Fig. 17) bear longer and wider digitulus, showing a tendency to intergrade with subsp. *matsunagai*. It is worth noting that the specimens referable to typical *komiyai* were unexpectedly recorded from the plain near the seashore in the southeastern corner of Iwata-shi (No. 40 on Fig. 17). Though rather difficult to specify the way by which they reached here, one possibility is that this colony might be transferred by the Ôta-gawa River from somewhere on the left bank of its upper course, the westernmost part of the territory of subsp. *komiyai*.

Ohomopterus arrowianus matsunagai IMURA, subsp. nov.

[Japanese name: Iwata-osamushi]

(Figs. 11–16)

Description. Most closely allied to subsp. *komiyai*, but discriminated from that race most aptly by characteristically shaped digitulus of the male genital organ. Averagely larger body size, differently proportioned elytra and robuster aedeagal apex are also diagnostic. Length (including mandibles): 23.7–27.8 (arithmetic mean 25.7) mm in male, 24.7–28.4 (arithmetic mean 27.0) mm in female. Body above reddish to brownish coppery or dark coppery, occasionally with a greenish tinge on head and pronotum. Tibiae and tarsi usually dark rufous. Entirely greenish or blackish individual was not found so far as concerned with the specimens examined. Differs from subsp. *komiyai* in the following respects: 1) size apparently larger on an average; 2) elytra usually more elongated, with the lateral sides less acutely narrowed toward apices; 3) apical part of aedeagus usually a little robuster; 4) digitulus of male genitalia larger, with the apical portion much more remarkably elongated, widely depressed and apparently dilated usually towards the left near apex which is obtusely rounded. Its dorsal wall usually grooved longitudinally on both sides of central ridge.

Type series. Holotype: ♂, Kamada [鎌田], ca. 10 m in altitude, on the Iwatabara (=Iwatahara or Iwata-ga-hara) Plateau, in Iwata-shi, of Southwest Shizuoka Prefecture, Central Japan, 2–IV–2007, M. MATSUNAGA leg., to be deposited in the Department of Zoology, National Museum of Nature and Science, Tokyo. Paratypes (all from

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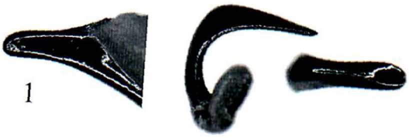
Figs. 1–16. Male genital organ of *Ohomopterus arrowianus* subspp. (left, apical part of aedeagus in right lateral view; centre, digitulus (copulatory piece) in right lateral view; right, ditto in dorsal view). —— 1–6, subsp. *komiyai* (1–3, from Mt. Ogasa-yama in Kakegawa-shi; 4, Sakamoto in Shimada-shi; 5, Mt. Awa-ga-také in Kakegawa-shi; 6, Jitôgata in Makinohara-shi); 7–10, intergrading population between subspp. *komiyai* and *matsunagai* (7–8, Shimonobé in Iwata-shi; 9, Gôdaijima in Iwata-shi; 10, Gokuraku-ji Temple in Ichimiya, Mori-machi); 11–16, subsp. *matsunagai* (11–12, Kamada; 13–14, Shingai; 15, Iwai; 16, Teradani; all from Iwata-shi). Scale: 1 mm.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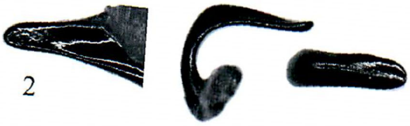
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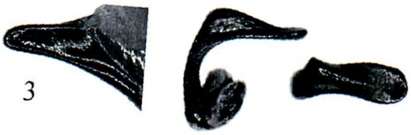
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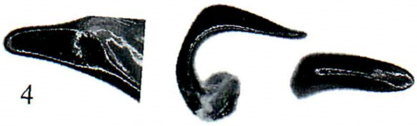
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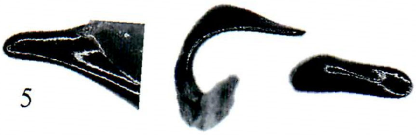
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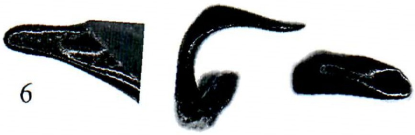
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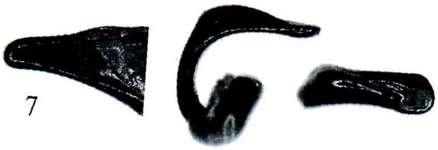
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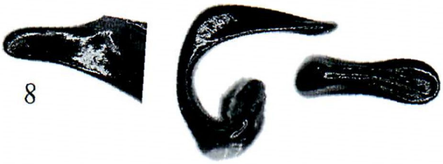
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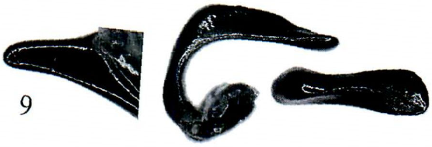
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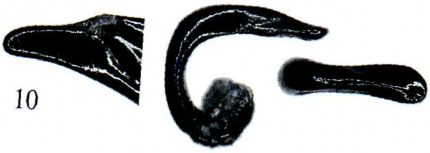
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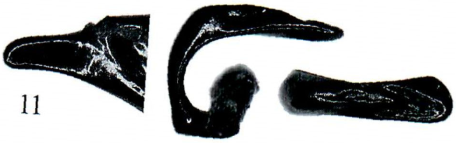
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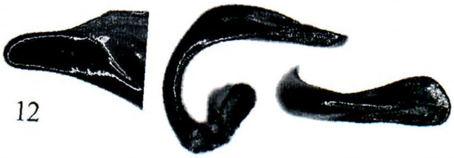
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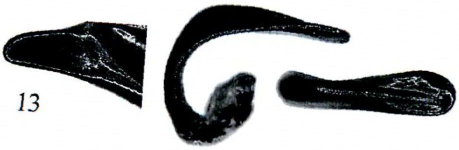
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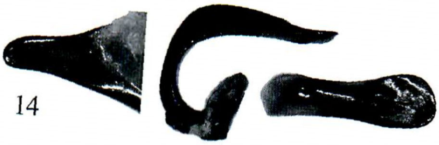
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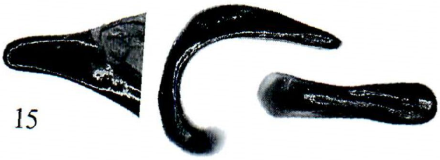
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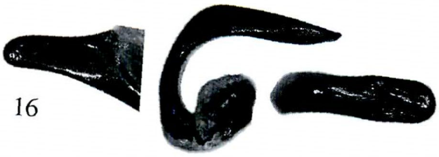
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southwestern part of Shizuoka Prefecture): [Iwata-shi] 1♂, same data as for the holotype; 10♂♂, 9♀♀, same locality, 27–VII–2008; 2♂♂, Shingai [新貝], 2–IV–2007; 20♂♂, 8♀♀, same locality, 26–VII–2008; 1♂, south of Ôji-jinja Shrine [王子神社] in Myôgajimabara [明ケ島原], 18–IV–2008; 10♂♂, 6♀♀, same locality, 26–IV–2008; 1♂, Mikano [三ケ野], 9–III–2007; 2♂♂, 1♀, Iwai [岩井], 21–III–2007; 2♂♂, 2♀♀, Kasaumé [笠梅], 18–IV–2008; 6♂♂, 3♀♀, same locality, 26–IV–2008; 1♀, Kônodai [国府台], 2–IV–2007; 3♂♂, 1♀, same locality, 11–IV–2008; 9♂♂, 3♀♀, same locality, 18–IV–2008; 1♂, same locality, 26–IV–2008; 1♀, Tomigaoka [富丘], 2–IV–2007; 1♀, Teradani [寺谷], 11–IV–2008; 2♂♂, 2♀♀, same locality, 18–IV–2008; 6♂♂, 6♀♀, same locality, 26–IV–2008; [Fukuroi-shi] 1♂, 4♀♀, Midori [見取], 18–IV–2008; 4♂♂, 3♀♀, same locality, 26–IV–2008; 4♂♂, 6♀♀, Tomonaga [友永], 24–II–2008, MM, YS & YI leg.; 3♂♂, 4♀♀, Yamada [山田], 24–II–2008, MM, YS & YI leg.; all but the specimens from the last two localities (Tomonaga and Yamada) were collected by MM. The paratypes are separately preserved in the collections of MM, YS and YI.

Distribution. Narrowly localized on the Iwatabara Plateau in the southwestern part of Shizuoka Prefecture, with the eastern margin outlined by the Ôta-gawa River in the south and its main tributary, the Shikiji-gawa River in the north. The western margin is defined by the western edge of the plateau indicated by a river terrace stretching from north to south along the left bank of the lower Tenryû-gawa River. Southern limit so far known is Kamada, the type locality of the new subspecies, lying near the southeastern end of the Iwatabara. In the northernmost part of the plateau, the new subspecies meets subsp. *komiyai* and seems to hybridize with it to form an intergrading zone as mentioned in the following section.

Notes. Until enthusiastically searched by Matsunaga, our knowledge was not necessarily sufficient on the distribution and local variation of *Ohomopterus arrowianus* in the southwestern part of Shizuoka Prefecture, and we naturally considered that the whole range between the lower courses of the Ôi-gawa and Tenryû-gawa Rivers might be occupied by a single subspecies, *O. a. komiyai*. It was therefore unexpected that such

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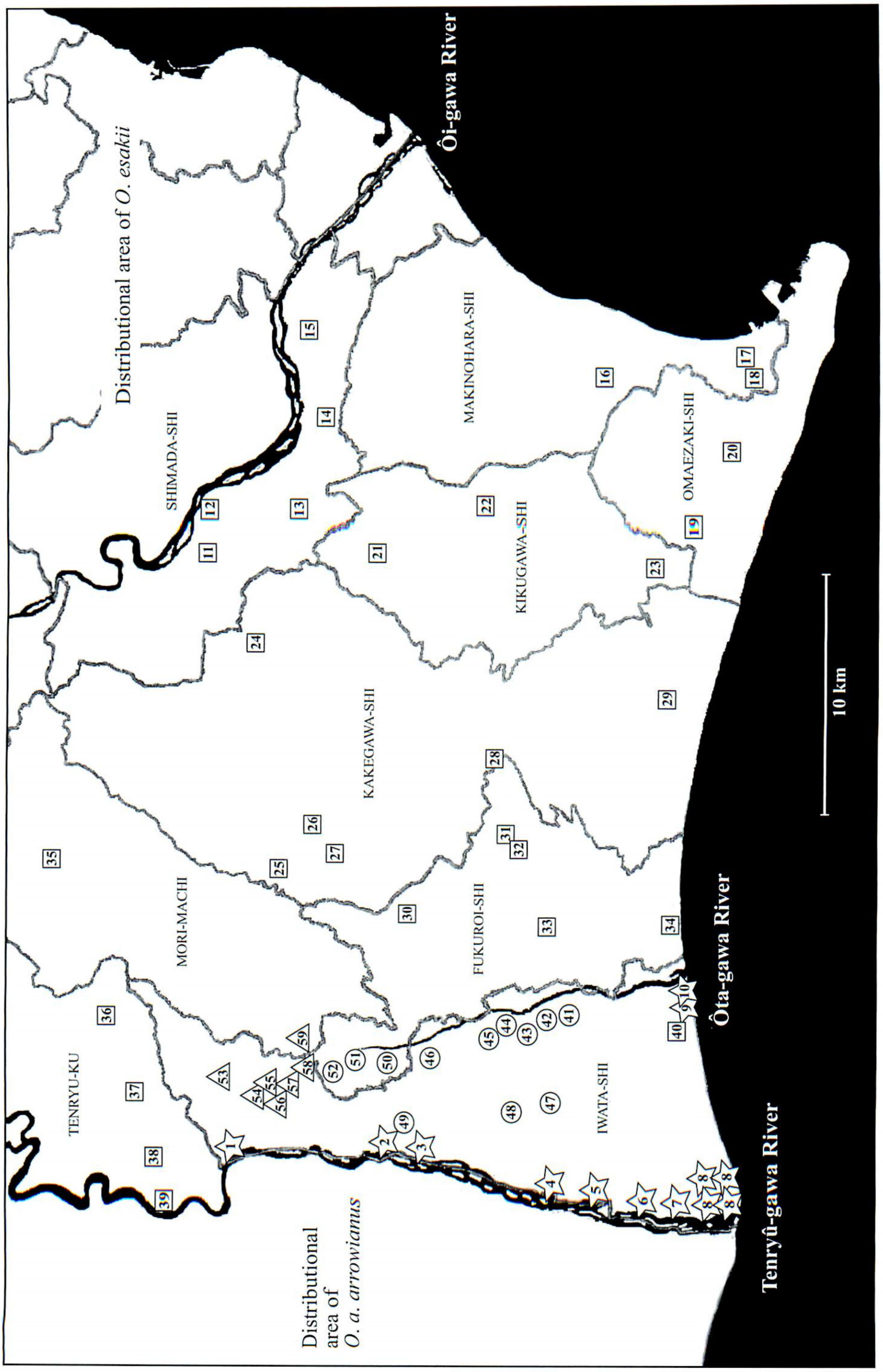
Fig. 17. Map showing the collecting sites of *Ohomopterus arrowianus* subspp. in the southwestern part of Shizuoka Prefecture, Central Japan. ☆ — Subsp. *arrowianus*, □ — subsp. *komiyai*, ○ — subsp. *matsunagai*, △ — intergrading population between *komiyai* and *matsunagai*. —— 1, Kanda in Kaminobé; 2, Teradani-shinden; 3, Teradani (riverside area of the Tenryû-gawa); 4, Toyoda-nishi-no-shima; 5, Miyamoto; 6, Toyo-oka; 7, Kaketsuka; 8, Komaba; 9, Fukudé-nakajima; 10, Fukudé; 11, Yoko-oka; 12, Yoko-oka-shinden; 13, Kanaya; 14, Yui; 15, Sakamoto; 16, Sugégaya; 17, Jitôgata; 18, Horino-shinden; 19, Kadoya; 20, Sakura; 21, Tomita; 22, Kan-no-o; 23, Katô; 24, Mt. Awa-ga-také; 25, Terashima; 26, Yuké; 27, Hongô; 28, Mt. Ogasa-yama; 29, Ôsaka; 30, Muramatsu; 31, Hatta-san; 32, Toyosawa; 33, Asaba; 34, Minato; 35, Mt. Komohari-yama; 36, Yokokawa; 37, Tadarai; 38, Yamahigashi; 39, Futamata-chô-ôsono; 40, Minamida-ihê-shinden: 41, Kamada; 42, Shingai; 43, Myôgajimabara; 44, Mikano; 45, Iwai; 46, Kasaumé; 47, Kônodai; 48, Tomigaoka; 49, Teradani; 50, Midori; 51, Tomonaga; 52, Yamada; 53, Toyo-oka Kokusai Country Club in Shimonobé; 54, Shin-hirayama-kôgyôdanchi in Shimonobé; 55, Shikiji Tunnel; 56, Gôdaijima; 57, west of Shikiji Station; 58, Ôtôsho; 59, Gokuraku-ji Temple in Ichimiya.


Ôi-gawa River
Distributional area of *O. esakii*
SHIMADA-SHI
MAKINOHARA-SHI
KIKUGAWA-SHI
OMAEZAKI-SHI
KAKEGAWA-SHI
MORI-MACHI
FUKUROI-SHI
IWATA-SHI
TENRYU-KU
10 km
Ôta-gawa River
Tenryû-gawa River
Distributional area of *O. a. arrowianus*
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a unique population with characteristically shaped male genital organ did occur in narrowly restricted area in the westernmost part of the same range. The Iwatabara is a low diluvial plateau formed near the estuary of the Tenryû-gawa River, measuring about 15 kilometers from north to south and about 5 kilometers from east to west at the widest part, with the height more than 100 m in the north and less than 10 m in the south. In the past time, the new subspecies must have inhabited the whole range of this plateau, but it is now rather discontinuously extant along the eastern or western edge, since the greater part of the Iwatabara have already been cultivated or developed as residential area. The main habitat of the new subspecies is such environment as the forest of evergreen broadleaved trees, that of planted cedar trees, or a small-scale grove remained around temple, shrine or tumulus. As shown in Fig. 17, the nominotypical *arrowianus* is rather commonly recorded along the eastern bank of the Tenryû-gawa River, and the habitat is only a few hundred meters distant in a beeline from that of *matsunagai* at the nearest point. Nevertheless, both the subspecies is nowhere intermingled and no individual caused by natural hybridization has been found. On the other hand, the new subspecies meets subsp. *komiyai* and apparently hybridize with it in the northernmost part of its range, where the Iwatabara Plateau is narrowly connected to the bedrock hills, the main territory of subsp. *komiyai*.

Intergrading Population between *Ohomopterus arrowianus komiyai* and *O. a. matsunagai*

(Figs. 7–10)

Specimens examined. [Iwata-shi] 4 ♂♂, 10 ♀♀, near Toyo-oka Kokusai Country Club 〔豊岡国際カントリークラブ〕 in Shimonobé 〔下野部〕, 9–IV–2007; 2 ♂♂, 1 ♀, Shin-hirayama-kôgyôdanchi 〔新平山工業団地〕 in Shimonobé, 18–IV–2008; same locality, 2 ♂♂, 1 ♀, 26–IV–2008; 1 ♀, Shikiji Tunnel 〔敷地トンネル〕 on the borders of Shimonobé and Shikiji, 9–V–2007; 5 ♂♂, 13 ♀♀, Gôdaijima 〔合代島〕, 26–IV–2008; 2 ♂♂, 1 ♀, same locality, 8–III–2008, MM & YS leg.; 2 ♂♂, 9 ♀♀, west of Shikiji Station 〔敷地駅〕 in Shikiji, 24–II–2008, MM, YS & YI leg.; 2 ♂♂, 6 ♀♀, Ôtôsho 〔大当所〕, 24–II–2008, MM, YS & YI leg.; [Mori-machi] 2 ♂♂, 8 ♀♀, near Gokuraku-ji Temple 〔極楽寺〕 in Ichimiya 〔一宮〕, 9–IV–2007; the above specimens were collected by MM unless mentioned and otherwise are preserved in the collections of MM, YS and YI.

Range. Near the northern end of the Iwatabara Plateau and the adjacent hills belonging to the northernmost part of Iwata-shi and southwestern tip of Mori-machi.

Notes. In the northernmost part of the Iwatabara Plateau, most specimens of *O. arrowianus* show considerable variation in shape of the digitulus, and considered to form an intergrading population between subspp. *komiyai* and *matsunagai*. Some specimens from near the southwestern end of Mori-machi (Nos. 58 and 59 on Fig. 17), or even those from northwestern Kakegawa-shi (No. 25 on Fig. 17) and north-central Fukuroi-shi (No. 30 on Fig. 17) bear longer and wider digitulus, suggesting that the intergrading zone between the two subspecies may be spread a little more widely than expected.

要　約

井村有希：静岡県南西部におけるミカワオサムシの記録と1新亜種の記載．—— ミカワオサムシ *Ohomopterus arrowianus* は本州中部に分布する多型種で，形態学的には7亜種に分類されている．このうち，静岡県南西部の大井川と天竜川に挟まれた地域に産する集団はカケガワオサムシ subsp. *komiyai* として古くから知られてきたが，松永正光氏らによる綿密な現地調査の結果，これまで調査の手が及んでいなかった天竜川下流域左岸の磐田原台地一帯に，♂交尾器形態に顕著な特徴をもつ固有の集団が生息していることが判明したので，*matsunagai* という名を与え，新亜種として記載した．本論文では同時に，これまで記録地点が比較的希薄であったカケガワオサムシと，河川流や海流により漂着したと思われる河川敷，海岸地域におけるミカワオサムシ基亜種の記録などもリストアップし，若干の考察を加えた．

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New Record of *Notosacantha ihai* (Coleoptera, Chrysomelidae, Cassidinae) from Iriomotejima Island, the Ryukyus

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Three species of the cassidine genus *Notosacantha* CHEVROLAT have hitherto been recorded from the Ryukyus, Southwest Japan. One of them, *N. ihai* CHÛJÔ was described from Okinawa-Hontô Is. It was additionally recorded from Yakushima Is., Akusekijima Is., Amami-Ôshima Is., Tokunoshima Is. and Ishigakijima Is., the Ryukyus (CHÛJÔ, 1961; KIMOTO, 1972; KOMIYA & KUBOTA, 2006; HAYASHI & SUGIMOTO, 2008). Until now, only the tree, *Turpinia ternate* NAKAI (Staphyleaceae), has been reported as its host plant (KOMIYA & KUBOTA, 2006; HAYASHI & SUGIMOTO, 2008). Although the tree is distributed in southern Shikoku, Kyushu, the Ryukyus and Taiwan, this species has been found from only the above six islands of the Ryukyus. When I visited Iriomotejima Is., I was able to collect one individual of *N. ihai*.

In this short paper, I am going to record the chrysomelid species for the first time from this island.

Before going further, I wish to thank Assoc. Prof. Satoshi KAMITANI (Kyushu Univ.) for his critical reading and commenting on the manuscript.

Notosacantha ihai CHÛJÔ, 1958

Specimen examined. 1 ex., Komi [古見], Iriomotejima Is., Okinawa Pref., 20–III–2008, S. YAMAMOTO leg. (deposited in my own collection).

Distribution. Japan: Yakushima Is., Akusekijima Is., Amami-Ôshima Is., Tokunoshima Is., Okinawa-Hontô Is., Ishigakijima Is., Iriomotejima Is. (new record).

Host plant. Turpinia ternate NAKAI (Staphyleaceae).

Remarks. It is obvious that *N. ihai* has a wide range in the Ryukyus. This suggests that this cassidine species may be found from other islands of the Ryukyus.

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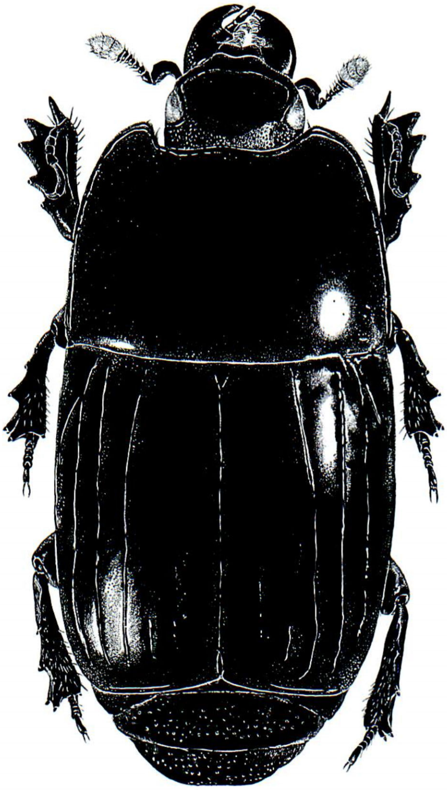

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投稿された原稿は，原則として 2 名の校閲者によって査読される．重大な修正が要求されない場合は，変更箇所などについて，事前に著者に通知を行わない．

原稿作成要領

1．原稿は横書きとし，A4 判用紙を用い，上下左右各 3 cm 以上の余白をあけ，ワープロ等で清書する．また，原稿 1 ページ目の上部には，少なくとも 1/4 ページ以上の余白をあける．清書する活字の大きさは欧文 14 ポイント（和文 12 ポイント），1 ページあたり 30 行とし，句読点には「．，：；・」を用いる．なお，欧文では，表題や見出しを含めて，いかなる場合にも大文字だけで表記しない．動植物の属およびそれ以下の学名には下線（イタリック書体指定）を，人名の 2 文字目以降に二重線（スモールキャピタル書体指定）を引く．

2．論文原稿は，表題，著者名，所属機関とその所在地（または住所），原則として刷り上がり 15 行以内の英文抄録（Abstract），本文，要約（和文）および文献の順に配列する．

3．短報原稿は，表題，著者名，所属機関とその所在地（または住所），本文，文献の順に配列する．著者が 2 人以上である場合は，著者名と所属機関およびその所在地（または住所）はそれぞれまとめて記す．

4．新タクサの命名記載をともなう報文には，正基準標本（ホロタイプ）の全形写真あるいは図を掲載することが望ましい．

5．文献は著者名のアルファベット順に並べて，下記の形式で記す．

FLEUTIAUX, E., 1942. Entomological result from the Swedish Expedition to Burma and British India. Coleoptera, Elateridae, recueillis par René MALAISE. *Ark. Zool.*, **33A**(18): 1–24.

WATANABE, Y., 1995. A new micropeplid species (Coleoptera) from Yunnan, Southwest China. *Elytra, Tokyo*, **23**: 245–249.

——— & LUO, Z., 1991. The micropeplids (Coleoptera) from the Tian-mu Mountains in Zhejiang Province, East China. *Ibid.*, **19**: 93–100.

6．報文中の標本採集データは次のように略記する．

（例）3♂♂, 1♀, Iryuda, Odawara-shi, Kanagawa Pref., C. Honshu, Japan, 9–V–2003, M. TAKAKUWA leg.

20 exs., Phu Pan (Mt.), 1,600 m alt., Ban Saleui, Houaphan Prov., NE Laos, 1–V–2002, H. YOSHITOMI leg.

7．原稿には，原稿用紙と同質の表紙をつけ，これに表題，ランニングタイトル（簡略した報文表題，欧文 50 字以内），著者名，連絡先を記し，赤字で原稿枚数，別刷部数（表紙の有無を明記），そのほか連絡事項があれば記入する．また，電子データの入った電子媒体（CD, メモリースティックなど）をかならず添付する．

8．図はすべて挿図（text-figure）として扱い，カラー写真などを除いて図版（plate）にしない．線画は耐水性黒色インク等で鮮明に描き，そのまま印刷できるようにする．印刷された図の拡大（縮小）率を示したい場合には図中にスケールを入れる．原図には薄紙のカバーをかけ，これに著者名，図の番号，上になる方向を示す．原図版上に取り扱い指定文字を入れたい場合には，かならず青鉛筆を用いる．なお，原図の大きさは台紙を含めて B4 判以内とする．

9．図の説明および表は，それぞれ別紙に書き，原稿末につける．図表のだいたいの挿入位置を，原稿本文に鉛筆で記入する．

10．原稿の送付先は下記学会宛とする．

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